LIST OF DELIVERABLES

Distribution	Contracting Officer	Project Manager	PRO Public Affairs Officer
A001 – Maintenance Log	LT	1+ E	
A002 – Hazardous Material Manifests	Original + 1		
A003 – Final Design Package	LT	10 + E	
A004 – LCCA of Designated Design Options	LT	10 + E	
A005 – Design Energy Reports	LT	10 + E	
A006 – Sub-metered Energy Use Data	LT	10 + E	
A007 – Construction Energy Management Plan	LT	10 + E	
A008 – Systems Operations & Maintenance Manuals	LT	6 + E	
A009 – Testing Procedures	LT	6 + E	
A010 – Specific Equipment Training Plans	LT	3 + E	
A011 – Pre-Functional Checklists	LT	1 + E	
A012 – "As-Built" Construction Documents	LT	1 + E	
A013 – DCx Operating Procedures	LT	6 + E	
A014 – DCx Checklists	LT	1 + E	
A015 – Wedges 2-5 Electronic Data Standards	LT	1 + E	
A016 – Drawings and Supporting Materials	LT	10 + E	
A017 – Detailed Plan of Repairs – Exterior Walls	LT	5 + E	
A018 – Detailed Plan of Repairs – Façade Joints	LT	5 + E	
A019 – Progress Photos	LT		5 + E
A020 – Preliminary Design and Construction Schedules	LT	10 + E	
A021 – Earned Value Methodology	LT	10 + E	
A022 – Earned Value Analysis Graphs	LT	10 + E	
A023 – Integrated Project Plan Updates	LT	10 + E	
A024 – Updated CAD Drawings	LT	10 + E	
A025 – Casework System Design	LT	10 + E	
A026 – NMCC TFO Design	LT	10 + E	
A027 – HSE Design	LT	10 + E	

Number of paper copies is shown under the title of who receives distribution.

E – Indicates an electronic copy is required. Electronic copies must comply with the Electronic Data Standards for this project. When submitted, the electronic copy must contain a copy of the electronic data standard used for that submission.

LT – Copy of the letter of transmission.

SECTION C
STATEMENT OF WORK
FOR
WEDGES 2 – 5

January 19, 2001

Note: This is a Public Release version of the Pentagon Renovation Wedges 2-5 Request for Proposal. Specific information has been removed from this version for security reasons. Thus, this is not a complete requirements document and should only to be used as an example of a performance-based RFP approach.

SECTION C
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TABLE OF PERFORMANCE CRITERIA

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1.0. INTRODUCTION

1.1. Background.

Renovation of the Pentagon is being accomplished in several major increments. The Program as a whole is managed as several distinct projects. The construction of the new heating and refrigeration plant is complete, as is renovation of Basement Segments 1 and 2A2, the Tri-Care Clinic, and the South Parking Pedestrian Bridges. Remaining areas in the basement will be demolished and hazardous material abated by other government contractors. Ancillary renovation projects include the construction of the Remote Delivery Facility (RDF) located north of the Pentagon, adjacent to the Mall Entrance, and a new Metro Entrance Facility (MEF) located south of the building. The above ground space is divided into five Wedges. Renovation of Wedge 1 is being accomplished under a separate contract.

1.2. Program Goal.

The goal of the Pentagon Renovation Program is to upgrade the Pentagon into a modern, flexible, and safe office environment that will endure well into the 21st Century.

1.3. Pentagon Renovation Program Objectives.

The following are the objectives for the Program as a whole:

- Provide a renovated facility "built for the next 50 years."
- Provide all new mechanical, electrical and plumbing systems, sprinkler systems, control systems, restrooms, vertical transportation, cable management systems, fire and life safety systems, and reconfigurable ceiling, lighting and partition office systems.
- Provide reliable and readily serviceable building systems having the lowest life-cycle costs to the Government over a 50-year design-life operating period.
- Provide a sustainable-design facility supporting national goals in energy and environmental awareness, compliance, cleanup, conservation, and pollution prevention.
- Increase the efficiency of space utilization and provide a highly reliable, flexible general office environment, as well as special function spaces, fully supportive of all tenant requirements.
- Provide accessibility throughout occupiable spaces for people with disabilities.
- Preserve historic elements of the facility.
- Upgrade food service facilities.
- Co-locate military service/DoD Component facilities to the extent possible.
- Provide modern telecommunications and information management systems support.
- Reorganize and modernize logistics support.
- Provide safety improvements in vehicular and pedestrian traffic.
- Remove all environmentally hazardous materials.
- Improve security aspects of the facility.
- Renovate the building while maintaining a majority of the occupants and offices in full operation.

1.4. Contract Scope.

This Wedges 2-5 project encompasses all the remaining above ground Wedge renovation, as well as supporting utility and basement work. The Contractor shall provide all labor, materials, and equipment necessary to renovate Wedge 2 of the Pentagon as well as any options exercised in accordance with the requirements herein. The scope of this effort includes but is not limited to de-commissioning, demo & abatement, design, core and shell construction, tenant fit out construction, and commissioning. The Contractor shall also perform ancillary tasks necessary to support the work, such as scheduling, work oversight, customer support, and coordination with the building operators, tenant representatives, and other contractors.

1.5. Project Objectives.

The Government has established the following objectives for the management and execution of this project. All elements of performance of this contract should accomplish or complement these objectives.

- Objective 1: Renovate the Pentagon to levels of quality, functionality, mission support, and robustness consistent with supporting a 50 year life span. Recognizing that cost is a constraint, take advantage of commercial practices and processes that can result in savings or cost avoidance to successfully complete the renovation within the contract budget.
- Objective 2: Manage tenant issues such that they do not hinder the renovation. Working with our tenant customers—the agency space managers—clearly communicate expectations, requirements, and tenant responsibilities and roles in the process. Shield the renovation contractor from internal DoD politics.
- Objective 3: Build a government/industry team and supporting processes that facilitate a streamlined, design-build approach in a cost/schedule constrained environment.

1.6. Government Entities.

The Wedges 2-5 project shall accommodate the interests, programmatic and functional requirements of the following organizations:

1.6.1. The Pentagon Renovation Program Office, hereinafter referred to as “the Government,” is the owner’s representative and contracting agency for this project. The Contracting Officer is the sole point of contact for all issues and requirements regarding this project. Within the program office, the Project Manager, Information Management and Telecommunications (PM, IM&T) is charged to engineer, furnish, install, and test a communications network infrastructure to support the above ground portion of the Pentagon and to engineer, furnish, install and test new systems and existing system moves and reconnections in support of IM&T Intensive systems for tenants.

1.6.2. The Planning and Stakeholders Activities Group (PSAG) is responsible for all tenant-related issues and tenant interface throughout the renovation process.

1.6.3. The Defense Protective Service (DPS) is the law enforcement arm of the Washington Headquarters Service and is responsible for all security aspects related to the design, construction, and operation of the Pentagon.

1.6.4. The Federal Facilities Division (FFD) of the Washington Headquarters Service owns all facilities and grounds located on the Pentagon Reservation and operates and maintains most facilities. Tenants reserve the right to operate and maintain

equipment to meet mission requirements. The Pentagon Building Management Office (PBMO) is a unit of FFD.

1.6.5. The Pentagon tenants are military service and defense agency organizations engaged in leadership and military operational functions within the building, as well as concessionaires and other supporting organizations.

1.7. Acronyms and Abbreviations.

Following is a partial list of acronyms and abbreviations used throughout this contract. Note that drawings have their own legends.

ADA	Americans with Disabilities Act
ATB	Above ground telecommunications backbone
C&S	Core and shell
CAD	Computer aided drawing
CD	Construction document
CER	Communication Equipment Room
CO	Contracting Officer, i.e., a person with the authority to enter into, administer, and/or terminate contracts and make related determinations and findings. The term includes certain authorized representatives of the contracting officer acting within the limits of their authority as delegated by the contracting officer.
COR	Contracting Officers Representative
CPM	Critical path method
CQC	Contractor quality control
CS	Commissioning Specialist
Cx	Commissioning
Contractor	Design Build Contractor
DCx	Decommissioning
DID	Design intent document
DPS	Defense Protective Service
EM&CS	Energy Management and Control System
EPP	Environmentally preferred products
EV	Earned value
FFD	Federal Facilities Division
IEQ	Indoor environmental quality
MEF	Metro Entrance Facility
NRC	Noise Reduction Class
OBS	Organization breakdown structure
OGC	Other Government contractor
O&M	Operations and maintenance
PBMO	Pentagon Building Management Office
QA	Quality assurance
QC	Quality control
RDF	Remote Delivery Facility
SCIF	Sensitive Compartmented Information Facility
SM	Square meters
STC	Sound Transmission Class
TC	Telecommunications closet
TFO	Tenant fit out
WR	Wedge room
W1	Wedge 1
WBS	Work breakdown structure

2.0. PROJECT REQUIREMENTS

2.1. Project Criteria.

The Contractor shall design and construct this project in accordance with the technical requirements described in the criteria package consisting of Performance Criteria and Facility Program Documents. Generally, the Performance Criteria describe the performance-based requirements for the renovated Pentagon. The Facility Program Documents depict the existing conditions and the design concepts, which includes features that must be maintained or elements the Government wishes to remain fixed. The concept drawings include the associated utility connections and concept diagrams. The documents are intended to provide the Contractor with the greatest degree of latitude possible within the constraints of an existing building.

2.1.1. *Facility Program Documents*. This grouping of documents consists of the following:

(a.) Existing Conditions drawings #1-331 dated Jan. 2001. These drawings identify the existing major or approximate superstructure conditions of the above-ground Pentagon Wedges 2 –5, as well as major utility features above ground and in the basement. These are not record drawings, but should be used as a reference for initial planning. The Contractor shall verify existing conditions during design, and prior to demolition and fabrication of new work.

(b.) Concept Plan drawings #1-33 dated Jan. 2001. These drawings depict those features for which design must be fixed or for which the Contractor has limited design influence. The architectural concept plans identify design elements that must be maintained or provided by the Contractor to provide uniformity of designated features, finishes and details within the final Wedges 2-5 design. The utility concept plans are schematic and intended to indicate concept. They notionally depict the routings and should be used by the Contractor to understand the origin and terminus of the required utility services. They are not meant to signify the only design solution for the utility routings, the final solution will be coordinated with the Government during design. The Wedge 1 E-ring exterior wall reinforcement drawings and Center Courtyard window installation details indicate structural modifications that were implemented during Wedge 1 construction to meet blast requirements. Provide the same reinforcement and anchoring for all remaining perimeter walls and windows for Wedges 2-5.

2.2. Building Systems Turnover and Operation.

2.2.1. The Cx Team serves as FFD's agent for inspecting systems (i.e., mechanical, plumbing, power, electrical/SCADA, fire, security, and energy management and control systems) in preparation for turnover in accordance with the Cx Plan. The primary interest is in proving systems are fully functional and meet all requirements of the design and commissioning plan. These systems functional performance tests usually take place before the pre-final inspection to insure the spaces will be fully operational.

2.2.2. The Contractor shall maintain all systems within a wedge until the milestone “All wedge work complete”, as shown in Section F, is met. Due to the size and nature of this project, finished spaces will be turned over incrementally within a wedge, thus there will be times when a system (i.e., multi-zoned air-handling unit)

encompasses such a large area that it may not be practical or efficient to turnover the complete system. When planning for these large area system turnovers, the Contractor must insure that the systems are tested as complete sub-systems or branches in accordance with the Cx Plan (available from the Contracting Officer). A sub-system is defined as a complete branch line or end of-the-line (downstream side) system, including all downstream connections, taps, etc., required to make the sub-system complete and operable. For example, a multi-zoned air-handling unit will have all zones operational and balanced before the system turnover inspection of the air handler. When components upstream of the sub-system being turned over must be energized to support operation of a space planned for turnover (i.e., a multi-zoned air-handling unit is operational to support the zone serving a space being accepted), the Contractor shall provide temporary utility support.

2.2.3. If the permanent components are in place that can support this requirement, the contractor may use the permanent equipment so long as:

- operation at less than full design capacity causes no damage to the equipment or other installed components
- the Contractor maintains the equipment according to manufacturers' recommendations and keeps a maintenance log which is submitted at system turnover.

Before the final commissioning inspections, the contractor shall ensure that all systems training is complete and appropriate Operations and Maintenance (O&M) Manuals are provided to the Cx Team for review and acceptance as required by the Cx Plan. This will allow FFD staff to become knowledgeable on equipment and systems they will be inspecting and for which they will be responsible following acceptance. The O&M Manuals shall include a list of responsible contractors and subcontractors with contact telephone numbers for warranty on each of the systems. Systems will not be re-inspected during the pre-final space inspections. At the completion of the system turnover inspections, FFD will be ready to accept the systems for operation and maintenance along with the turnover of the first space served by the system.

2.3. Demolition and Abatement.

After isolating work areas with barrier walls, rerouting existing utilities and installing temporary utilities, the Contractor will strip the building interior to the face of primary structural members.

2.3.1. *Temporary Mechanical, Electrical, and Plumbing (MEP) Work.* The Existing Conditions Drawings show primary systems necessary to maintain environmental conditions, life safety, and utility services to occupied areas of the Pentagon. While these drawings do not show secondary distribution, such as minor piping runs, ductwork runouts, electrical feeder and branch circuits, and similar items, information obtained from site visits and Wedge 1 documentation provides a relative magnitude of this effort. The Government will accept the responsibility for rerouting when undocumented secondary distribution for plumbing, electrical power, or HVAC is encountered that crosses the construction barrier. When undocumented conditions occur the following procedure is to be used:

- To determine where an unknown utility can be cut, the Contractor shall trace the utility to determine its origin and terminus. The Government will assist in tracing utilities that run through areas not accessible to the Contractor.

- If the utility serves only the construction zone, the Contractor shall cut and cap on the occupied side of the construction barrier.
- If the utility serves an occupied area, tag the utility with a unique identifier and notify the COR. The Contractor shall assist the Government in determining appropriate action and the most cost-effective work around. The Government will work expeditiously with the affected Tenant to determine when the utility can be cut. If the Government determines that temporary MEP work is required to maintain the utility, the Government will either modify this contract for the temporary MEP work, or will accomplish the work outside this contract. Once the Government notifies that it is acceptable to cut the utility, the Contractor shall cut and cap on the occupied side of the construction barrier.

The Government will locate, trace, and tag telecommunications that cross the construction barrier. The Government will reroute these telecommunications, and will notify the Contractor when these crossings can be cut.

2.3.2. Demolition will include the removal of non-load-bearing partitions. Interior demolition also includes removal of furnishing and debris left behind by vacated tenants. Concurrently the Contractor will abate hazardous materials such as asbestos, lead and other contaminants. Removed hazardous materials must not be mixed with salvageable, recyclable and generic debris. Contractor-submitted suggestions with focus on simplifying or improving the demolition process will be welcomed and considered for implementation by the Renovation Team. For equipment protection and security accreditation purposes, remove all material from ceiling, walls, columns and fill all holes resulting from demolition and abatement in Information Management and Technology (IM&T) facilities (TCs, CERs, WRs, and IM&T intensive facilities). Hazardous and toxic materials encountered during this demolition process will be disposed of in accordance with applicable laws and regulations governing the handling of these materials. Demolished non-hazardous materials will be salvaged during the demolition process to the maximum extent possible and savings should be reflected in the cost of this operation. Recycling is of paramount importance to the Pentagon Renovation Program. See Section J, Attachment 7.

2.3.3. Fuel oil was used as a dust control agent for excavation work during the original construction of the Pentagon and it is expected the Contractor will find some level of contamination during any soils work. Previous experience with the Commonwealth of Virginia, Department of Environmental Quality suggests we will be able to redeposit soils below 500 ppm Total Petroleum Hydrocarbons (TPH) so long as the material is stockpiled and redeposited in a manner that will prevent further migration. Soil used for re-grading or backfill of excavated areas must contain less than 50ppm TPH and less than 5 ppm benzene based on Virginia Department of Environmental Quality (VDEQ) "Guidelines for the Disposal of Soil Contaminated With Petroleum Hydrocarbons."

2.3.4. Hazardous materials removed from the facility shall be properly invoiced in accordance with federal, state and local regulations. Originals and one copy of all manifests shall be supplied to the contracting officer or their designated representative.

2.4. Design.

2.4.1. *Design Management Process.* The work in each wedge is broken into *core and shell* and *tenant fit-out.* Additionally, the Contractor shall phase the work in each

Wedge as necessary to meet Phasing Requirements (see Section C, Tenant Information). The Contractor shall coordinate with the Government to ensure successful phasing of tenant moves, decommissioning, demolition and abatement, core and shell design, general construction, commissioning, TFO design, TFO construction, move-in, and utility infrastructure. The Government shall have final approval authority for the Contractor's proposed phasing plan, including design schedule.

2.4.2. *Structural Design Criteria*. Based on limited structural analysis performed on past projects, there is a strong indication that the live load capacity of the Pentagon floor system is about 7.2 kPa. To confirm this capacity, the floor system in each wedge shall be randomly load-tested by the Contractor in accordance with the approved rules by approved testing agencies. Every structural assembly shall sustain, without failure, minimum superimposed loads equal to 2.5 times the required live load. Three test locations per wedge are recommended for the load testing of the Pentagon floor system. A seismic design analysis of the existing structure is not required.

2.4.3. *Design Documentation*. The Contractor shall provide the Government with periodic progress documentation, complete sets of final drawings stamped by appropriate licensed professionals, specifications, design calculations, "basis of design" narrative, and material information and samples proposed for use in construction. Final “as-built” documentation is noted below.

2.4.4. *Core and Shell Design.* Core and shell (C&S) design shall include all requirements for building-wide systems, spaces and infrastructure including (but not limited to):

- Utility systems (electrical, mechanical, plumbing, etc.),
- Utility pathways and infrastructure (conduit, ductwork, cable trays, pipes)
- Building support spaces (circulation, public restrooms, mechanical rooms, electrical closets, etc.)
- Universal Space concept plans
- Casework concept diagrams

C&S design may also include the secondary distribution of utility systems within tenant occupiable spaces if deemed efficient and appropriate. The Contractor shall ensure that C&S designs meet the performance requirements listed in the Performance Criteria Matrices located in Section 8.0 herein. The Contractor shall ensure that the elements of the C&S design are stable in configuration, location and capacity so that the tenant occupiable areas may be planned efficiently and flexibility.

2.4.4.1. *C&S Design Development.* During the C&S design phase, the Contractor shall produce a *Design Intent Document* and a *Basis of Design* narrative for each C&S component to be included in the commissioning process as well as Universal Space concept plans. The C&S design development schedule shall provide the infrastructure required for Tenant Fit Out (TFO) development and shall be sequenced prior to with TFO design at the discretion of the Contractor.

2.4.4.2. *C&S Design Intent Document (DID).* The purpose of the C&S design intent document (DID) is to provide the system performance criteria and layout of C &S spaces to be used by the Contractor in the design process. It is initially based on the applicable parts of the performance criteria in Section 8.0

herein. C&S DID requirements are discussed in additional detail in the Wedge 2-5 Commissioning requirements, as noted in Section 2.5.5

2.4.4.3. *C&S Basis of Design*. The basis of design is the documentation of the primary thought processes and assumptions behind design selections and decisions that are made to meet the design intent. The basis of design describes the systems, components, conditions, and methods chosen to meet the intent. Level of detail included in the Basis of Design shall increase as the design continues to develop. The Contractor shall include the following topics, as a minimum, in the basis of design for major C&S systems:

- Description, objectives and functional use of each space location (in relationship to other requirements noted in the Tenant Information section), system, equipment or facility and methods for achieving the design intent objectives
- Codes and standards to be met
- Quantitative description of quality of materials, finishes and construction
- Equipment maintainability
- Fire, life, safety: criteria, general strategy narrative and detailed sequences
- Emergency power control and function
- Energy performance
- Ventilation strategies and methods
- Indoor environmental quality, IEQ (space temperature, relative humidity, indoor air quality, particulate and gaseous filtration efficiencies, noise level, illumination level, etc.)
- Sequences of operation, including setpoints and control parameters
- Schedules
- Occupancy schedules
- Applicable codes and standards
- Primary load and design assumptions
- Diversity used in sizing
- Occupant density and function
- Indoor conditions (space temperature, relative humidity, lighting power density, ventilation and infiltration rates, etc.)
- Outdoor conditions
- Glazing fraction, U-value and shading coefficient
- Information of secondary importance to the commissioning and operation of the building should be documented by the design team, but is not included in the design documentation described here or included in the O&M manuals (e.g., wall R-values, mass, etc.)
- Performance criteria (energy consumption, tolerances of the IEQ objectives, etc.)
- Sustainable design metrics
- Restrictions and limitations of system or facility
- Budget considerations and limitations

Additional information on C&S *Basis of Design* requirements is discussed in the Wedge 2-5 Commissioning requirements, as noted in Section 2.5.5

2.4.5. *Tenant Fit Out Design.* Tenant fit out design includes all Government provided tenant specific requirements for systems, spaces and equipment. Tenant fit out designs shall conform to the space type infrastructure indicated in the Space

Zones Diagrams and Narrative Description of Space Types (see Section C, Tenant Information). The Tenant Fit Out design shall be based upon the universal space concept plan. Refer to Space Types O-2 Executive Office, and O-3 General Office, which represent approximately 70% of the occupiable areas and to Universal Space as defined in SOW Section 7.8.

The tenant interface throughout the renovation process is described in detail in the Pentagon Renovation Program Tenant Guidelines (Revised), Sections 1.2, 1.5, 1.6, available from the Contracting Officer.

2.4.5.1. *TFO Design Development.* During the TFO design phase, the Contractor shall produce TFO Design Intent Documents (DID), one for each tenant organization. Using Wedge 1 as an example, approximately 120 TFO DID packages may be required for each Wedge project area.

Each TFO DID set shall document how the Pentagon Renovation Program and the Contractor shall fulfill the Tenant Agencies' requirements for a specific space. This document set also establishes the baseline criteria within which the OGC's may proceed with their independent design. The TFO DID must, at minimum, include a complete architectural configuration including the following:

- A partition plan showing critical dimensions, locations and types of partitions, door type and type of hardware set,
- Room numbers and names, area calculations, and a signage plan that includes a message schedule,
- Systems furniture layout using government provided manufacturer's furniture symbol set (reference Section 4.2 Furniture)
- Freestanding furniture that the tenant will be relocating or purchasing new that must be accommodated and coordinated in the design of the new space.
- Telecommunications and security requirements.
- A typical utility systems requirements, e.g. a-typical light switching, dedicated equipment outlets, supplemental HVAC, a-typical telecom devices, etc.
- Suite Entry Door, hardware and security devices (Refer to Security Requirements)
- Architectural Finish selections
- Systems furniture finish selections

The TFO documents must, at a minimum, include the elements noted above as minimum requirements of the DIDs as well as engineering documentation required to complete design of all systems. The following is an outline of the TFO DID process:

Tenant Fit Out Process Outline		
A.	Kick-off meeting date and time notification	60-120 days in advance of kick-off meeting (allows Government time to obtain latest specific tenants requirements.)
B.	Kick off meeting	2 hours typical (move-in date minus 9 to 18 months)
C.	TFO DID production and submittal for review	4 to 12 weeks following kick-off meeting
D.	1st Review period	2 weeks minimum (date of drawing distribution

		determined at kick-off meeting)
E.	1st On-Board review	1 - 2 hours typical per tenant (day and time determined at kick-off meeting)
F.	Final DID production and submittal for review	1 week minimum (date of drawing distribution determined at kick-off meeting)
G.	2nd On-Board review and DID signing	1 hour typical per tenant (day and time determined at kick-off meeting)
H.	Final TFO CD production and submittal	Duration as determined by the Contractor

The Contractor shall schedule the kick-off meeting for the tenant fit out design phase to commence not earlier than 18 months prior to scheduled move-in and not later than 7 months prior to scheduled move-in. This interval has been determined to provide adequate time for coordination of all contractors and vendors, yet sufficiently close to move-in that the tenant agencies' requirements can be held stable until move-in.

Government approval is required for extensions of design, deviations from the contract performance criteria or approved designs as well as other items necessary to insure conformance with the contract requirements.

2.4.6. *As-Built Documentation*. Complete as-built documentation of all construction is required. All building areas, components, systems and features shall be documented in the as-built configuration. Format requirements for submission are noted in Section 2.9.

2.4.7. *Room Numbering System and Signage Plan*.

2.4.7.1. *Room Numbering*. There is an established room numbering system at the Pentagon. Prior to commencing work on any drawings the Contractor shall become familiar with the Pentagon Standard Room Numbering System. This room numbering system shall be incorporated into **all** design and construction drawings. An electronic (CADD) basic room numbering grid is available from the Contracting Officer.

2.4.7.2. *Signage Plan.* As a part of the DID development process, the Contractor shall prepare a Signage Plan that includes a message schedule. This plan shall include all core and shell and suite entry signage required off a public access corridor. This plan will be used by the Government to procure signs from an OGC. Standard signage will be provided throughout the renovated Pentagon. During the DID development process, the Contractor shall gather the required information from the Government, assist in coordinating room numbers, and review signage shop drawings with the Government . The Core & Shell Signage Typicals are available from the Contracting Officer. An example of a message schedule created for Wedge 1 is also available from the Contracting Officer.

2.5. Integrated Sustainable Design Requirements.

2.5.1. *General Requirements*. The Contractor shall design and renovate Wedges 2 through 5 into a model sustainable-design facility supporting federal goals in energy and environmental initiatives, including energy efficiency improvements, enhanced Indoor Environmental Quality (IEQ), greenhouse gas reduction, water

supply, waste prevention, commissioning and facility maintenance and operations. The intent of using an Integrated Sustainable Design approach is to create a culture where every element of work is examined as part of process that reduces the impact on our natural resources of the local, regional, and global environments while enhancing the IEQ for the occupants. Evaluation of trade-offs will be an important component of the design and will have to be evaluated in a holistic framework to achieve long-term benefits for the program. Evaluation criteria will include economic rate-of-return, the overall project budget and schedule limitations, program requirements, aesthetic acceptability, maintainability and environmental justice. The design process must be iterative, interdisciplinary and reflect the interconnection of all systems and resources.

2.5.2. *Energy Efficiency***.** The Contractor must meet or exceed the goals and objectives stated in Executive Order 13123 Greening the Government through Efficient Energy Management (June 99).

2.5.2.1. *Performance Requirements:* The Energy Budget per wedge specifies a maximum acceptable level of energy consumption or Building Energy Budget. The Energy Budget was developed from the energy criteria summarized in the performance criteria, and represents a level of efficiency to be achieved within the construction budget. The building energy budget assigned to each geographical Wedge is listed in the table below.

The budget figure includes all metered energy use at the facility, including energy for HVAC systems, lighting of the building, elevators, motors, water heating and receptacles. The Wedge Energy Budget area is defined by the permanent system boundaries resulting from the Contractors' design. Any deviations from the Wedge boundaries and permanent system boundaries will be handled through normalization to the Energy Model. The Contractor is responsible for identifying cost-effective energy efficient strategies that will meet the Building Energy Budget. Cost-effectiveness shall be demonstrated by life-cycle-cost analysis of designated design options.

Area	Energy Budget (MJ/gsm)
Wedge 2:	xxxx
Wedge 3:	xxxx
Wedge 4:	xxxx
Wedge 5:	xxxx

2.5.2.2. *Design:* The Contractor will evaluate the building design on a comprehensive basis, accounting for all interactions between the building envelope, HVAC systems, lighting, power and emergency systems. The Contractor will be required to perform computer Energy Analyses and Life Cycle Cost Analyses (LCCA). The contractor shall provide a LCCA for each major building system. Analysis tools for LCCA must receive prior approval by the Government. The Contractor shall submit energy reports with every design submittal during the design process to ensure compliance with the Energy budget. The Contractor will be required to design the building energy systems in accordance with Performance Criteria outlined in Section C and as

coordinated with the Government. Design of an Energy Management and Control System (EM&CS) will be included.

2.5.2.2.1. Energy Management and Control Systems (EM&CS).

The primary function of the EM&CS is the control of the HVAC systems and to interface with several subsystems. These include the fire alarm system, lighting control, vertical transportation monitoring, electrical system monitoring and control, plumbing systems monitoring, and miscellaneous monitoring and control of other systems. All subsystems must be interoperable with the existing EM&CS (METASYS). The Contractor shall design the EM&CS to meet the level of monitoring and control indicated in the HVAC Standard Sequence of Operations Manual (available from the Contracting Officer). Where systems are provided that are not addressed by this Manual, the Contractor shall design their level of control and monitoring comparable to similar systems in the Manual.

The Pentagon shall be renovated to provide basic control capability and be configured to facilitate subsequent upgrades of monitor and control capabilities. The Contractor shall provide an integrated and fully operational control system to satisfy the performance criteria. This system shall be interoperable across all Wedges.

2.5.2.3. *Measurement and Verification (M&V).* The Contractor shall verify actual energy performance through permanent sub-metering of electricity, chilled water, steam, and other utilities as appropriate to each wedge. All meters shall be easily accessible for field verification and calibration. Areas with high levels of energy usage (e.g. data centers) shall be separately sub-metered from general office areas.

- Steam Meters – Steam meters shall have a minimum turndown of 40:1 with a maximum error +/- 2% of actual flow over the top 90% of demand. At a minimum, one steam condensate meter shall be installed per wedge.
- Other Meters - At a minimum, one meter of each type shall be installed per wedge. These include potable water meter, chilled water meter, natural gas and all other energy crossing the wedge boundary.

In addition to the meters listed above, which are included in the EM&CS design, the Contractor shall provide the following meters factory-installed on the respective piece of equipment:

- Electric Meters for Primary and Secondary Switchgears – Digital metering with local readout; RMS metered values; phase volts, line volts, phase amperes, neutral amperes, watts, vars, and demand watts on each main; total kilowatt-hours and kilovar-hours; watthour pulse (KYZ) output; power quality monitoring to include waveforms and harmonics (up to the 50^{th}), with a real-time clock, time/date indicator, event capturing, and a sampling rate of 128 samples/cycle. A user-friendly display shall be provided. Provide interface for the above data to EM&CS.
- Electric Meters for Uninterruptible Power Supplies (UPS's) – Digital metering with local readout; RMS metered values; phase volts, line volts, phase amperes, neutral amperes, watts, vars, and demand watts on each output; power quality monitoring to include waveforms and harmonics (up to the 50^{th}), with a real-time clock, time/date indicator, event capturing, and a sampling rate of 128 samples/cycle. A user-friendly display shall be provided. Provide interface for the above data to EM&CS.

- Electric Meters for Power Distribution Units (PDU's) – Digital metering with local readout; RMS metered values; phase volts, line volts, phase amperes, neutral amperes, watts, vars, harmonic amperes, and demand watts on each output; and full spectrum analysis capability on output.

The Contractor shall provide monthly reports to the Government of sub-metered energy usage data for the first year of wedge occupancy. The Contractor shall provide the Government with quarterly reports during the first year of wedge occupancy that compares predicted performance with actual performance, normalizing for factors such as weather, etc. per the approved M&V methodology.

2.5.2.4. *Construction Energy Management Plan.* The Contractor will initiate and implement a construction energy management plan to ensure that all utilities required for the Contractor's use are consumed in the most efficient manner without affecting construction material or equipment. The plan will be submitted at least 30 days before construction begins.

2.5.3. *Enhanced Indoor Environmental Quality (IEQ).* IEQ is the sum of the factors experienced by occupants in a building, such as temperature, humidity, ventilation, lighting, noise, cleanliness, odor, and exposures to chemical and biological agents. The Pentagon should be renovated with the goal that it provides an indoor environmental quality that enhances occupant health, well-being, and productivity.

2.5.4. *Environmental Initiatives*. The Contractor must meet or exceed the goal and objectives stated in Executive Order 13101 Greening the Government through Waste Prevention, Recycling, and Federal Acquisition.

2.5.4.1. *Environmentally Preferred Products (EPP).* These are products that reduce effects on human health and the environment which consider raw material source, production, manufacturing, packaging, distribution, use of recovered materials, reuse of product, operation, maintenance, disposal and recyclability. These attributes must also be balanced with overriding program goals of durability, cost effectiveness (based on life cycle cost analysis) and reliability. The Contractor shall also comply with requirements of the comprehensive procurement guidelines, which can be obtained at *http://www.epa.gov/epaoswer/non-hw/procure/*.

2.5.4.2. The following are specific EPP goals that are targeted for the Pentagon Renovation Program:

- No materials or building components that were manufactured with ozone-depleting compounds, including CFCs and HCFCs.
- No materials or building components that were manufactured with, or that contain Polyvinyl Chloride (PVC) or other chlorine -based compounds.
- No materials that contain Volatile Organic Compounds (VOC). In the cases such as roof assemblies and paints where zero VOC content is not available, low VOC materials will be acceptable; but VOC content must be documented and coordinated prior to purchase and installation.
- Use building materials and products that reduce greenhouse gas emissions by specifying recycled-content, bio-based, and/or industrial by-products vs. virgin materials. A 35% reduction is the goal when comparing each specified product to a comparable product that is not an EPP but meets the performance requirements.

- Use only dimensional wood and wood products certified as originating in certified well-managed forests, as identified by the Forest Stewardship Council (FSC). In specifications where certified wood is not available, alternates must be documented and submitted to the Government prior to purchase and installation.

2.5.4.3. *Waste Management.* The Contractor shall initiate and implement a Construction & Demolition Site Recycling program to divert a minimum of 50% of all recyclable waste materials from landfilling or incineration, and should include mixed metals, clean wood, cardboard, asphalt, concrete, land clearing debris, beverage containers and other materials for which markets exist.

2.5.5. *Commissioning/Decommissioning.*

2.5.5.1. *Commissioning.* To ensure fully functioning facility systems that meet building mission and quality requirements, the Government requires a commissioning process for Wedge 2-5. Commissioning (Cx) is a proactive, systematic, and rigorous process of assuring by documentation, functional testing, and training, from the design phase through the completion of the warranty period, that all building facility systems perform interactively in accordance with the design documentation and intent, and in accordance with the Government's operational needs. This process judges correct performance of both individual systems and systems operating interactively according to the project design intent.

The Contractor and OGCs as necessary shall supply the personnel and technical resources needed to execute project Commissioning activities with the advisory oversight of the Government's Commissioning Specialist (CS). Using the Draft Wedge 2-5 Commissioning Plan and Procedures Manual dated September 15, 2000 as a guide (available from the Contracting Officer), the CS, assisted by the Contractor and OGCs, will develop and execute the final project-specific Commissioning Plan and Procedures Manual concurrent with design and construction.

2.5.5.1.1. *Contractor Responsibilities* (Refer to Wedge 2--5 Draft Commissioning Plan and Procedures Manual). The Contractor shall:

(a.) Commissioning Coordination (Design Phase)
1. Incorporate Commissioning milestones into the Master Construction Schedule.
2. Prepare and submit initial Systems Operation and Maintenance Manuals (SOMM) (Refer to Attachment 6 to W2-5 Draft Commissioning Plan and Procedures Manual for requirements).

(b.) Commissioning Coordination (Construction Phase)
1. Attend commissioning kick-off and subsequent Commissioning meetings called by CS.
2. Coordinate Commissioning activities with the EMCS Contractor and the VT Contractor. Contractor shall provide communications and coordination so that the work of each party may proceed smoothly within the allotted construction schedule.
3. Integrate Commissioning activities (including OGC Commissioning activities) into Master Construction Schedule.
4. Prepare and make available for review and comment required forms and systems information (Refer to W2-5 Draft Commissioning Plan

and Procedures Manual). The Contractor shall prepare and make available for review and comment sample balancing forms.

5. Schedule and coordinate Commissioning efforts required by appropriate OGCs and vendors.
6. Copy CS on input to Government for necessary changes in construction or design clarifications.
7. Make available for review and comment pertinent systems/equipment documentation (such as, shop drawings, product data, etc.) to CS for review and comment prior to approval.
8. For building systems and equipment not included for commissioning under the Commissioning Plan and Procedures Manual, develop detailed, equipment-specific testing procedures and submit to Government for review.
9. Develop and submit project specific equipment training plans and training materials.
10. Author appropriate portions of the systems overview to be included in the SOMM information and for use in operator training.
11. Issue modifications, clarifications, or interpretations of Design Intent Documentation, as required.
12. Review and approve testing, adjusting, and balancing reports.
13. Maintain a record set of shop drawings, product data, warrantees, test reports, balance reports, start-up certifications, etc.
14. Disposition SOMM review comments.
15. Prepare and submit final SOMM, including instruction postings, diagrams, etc. (Refer to Attachment 6 to W2-5 Draft Commissioning Plan and Procedures Manual).
16. Develop and submit LOTO procedures for equipment (Refer to Attachment 6 to W2-5 Draft Commissioning Plan and Procedures Manual for requirements).

(c.) System Readiness

1. Certify that systems have been installed and are operating per construction documents.
2. Complete Pre-functional Checklists and submit along with other installation certification information (such as balancing reports, warrantees, factory testing results). (Refer to Attachment 3 to W2-5 Draft Commissioning Plan and Procedures Manual).
3. Prepare and conduct equipment training for Government and OGC operators (Refer to Attachment 7 to W2-5 Draft Commissioning Plan and Procedures Manual).
4. Participate in respective portions of equipment start-ups and training.

(d.) Acceptance

1. Set up and perform system performance trend analysis.
2. Conduct all Functional Performance Tests (FPT) (Refer to Attachments 4, 5, and 8 to W2-5 Draft Commissioning Plan and Procedures Manual for necessary level of rigor).
3. Participate in the systems level training program for the Government operators.
4. Prepare and submit a final ‘as-built’ copy of the full Construction Documentation (such as, construction plans, construction specifications, system architecture drawings, etc.).

(e.) Warranty Phase

1. Consult with Government as necessary to convey and maintain Design Intent Documentation and respond to any identified deficiencies and lessons learned.
2. Maintain current record drawings and documentation to reflect any changes made during this phase.
3. Conduct deferred and/or intermediate season FPT, as required.

2.5.5.2. *Decommissioning*. Decommissioning (DCx) is the systematic process of verifying that specified components and systems have been properly shut down and taken safely out of active service for demolition and removal, in-place storage for future reactivation, in-place abandonment, or some combination thereof. It is a comprehensive process that:

(a.) starts with or before initial design,
(b.) determines existing conditions of systems to be decommissioned,
(c.) documents DCx intent, interface systems, boundary limits, pass-through services, alternate service sources, and hand-off procedures,
(d.) addresses temporary telecommunications, mechanical, electrical and plumbing requirements,
(e.) considers potentially dangerous stored energy sources, environmental hazards, and possible adverse impacts on systems that must remain operating,
(f.) and leaves decommissioned components and systems tagged with their actual final status, the identification of each system they directly interface with, the respective operational status of each interface system, and code-appropriate warning signage for remaining potential hazards.

The Contractor and OGCs as necessary shall supply the personnel and technical resources needed to execute project Decommissioning activities with the advisory oversight of the Government's Commissioning Specialist (CS). Using the Draft Wedge 2-5 Decommissioning Plan dated September 15, 2000, as a guide (available from the Contracting Officer), the CS, assisted by the Contractor and OGCs, will develop and execute the final project-specific Decommissioning Plan concurrent with design and construction. The Contracting Officer will coordinate this effort among all contractors and the C

2.5.5.2.1. Contractor Responsibilities (Refer to Wedge 2-5 Draft Decommissioning Plan). The Contractor shall:

(a.) Decommissioning Coordination (Pre-demolition/abatement & Temporary Utility Phase)
1. Work with the Government to develop the Final DCx Plan from the initial draft DCx Plan.
2. Conduct site evaluations of existing mechanical, electrical, plumbing (MEP), and Security systems, identifying systems to be separately decommissioned by OGCs, and perform environmental due diligence reviews.
3. Develop and update, as necessary, a plan that encompasses Section 2.5.6.2 (c) above.
4. Incorporate DCx milestones into the Master Construction Schedule.
5. Develop detailed DCx specifications for systems and equipment to be decommissioned for the construction documents (Refer to Task 4, Design Phase, Draft W2-5 DCx Plan).

6. Demonstrate the in-house lockout/tagout (LOTO) program intended for use during the renovation work and prior to the first DCx fieldwork (other than site surveys).
7. Make available for review and comment DCx design documentation, including descriptions of sequences of operations and system narratives.

(b.) Decommissioning Coordination (Demolition/Abatement and Construction Phase)

1. Attend DCx kick-off and subsequent DCx meetings.
2. Prepare and make available for review and comment complete DCx installation, alteration, inspection, start-up, shutdown, testing, adjusting, balancing, documentation, and other needed work for Project systems and equipment as outlined in the construction documents, and Final DCx Plan.
3. Schedule, coordinate and integrate project DCx activities including those of Contractor Subs, vendors, and OGC's, into the Master Construction Schedule.
4. Understand the pass-through services and interface system needs of the energy management and control system (EMCS) OGCs, and provide them to the extent required in the construction documents.
5. Share Project-wide LOTO procedures with the OGCs for consistent use in executing their respective DCx work.
6. Prepare and make available for review and comment required forms and systems information as outlined in the final DCx Plan. The Contractor shall prepare and make available fore review and comment sample balancing forms.
7. Copy the CS on input to Government for necessary changes in construction or design clarifications.
8. Review submittals including site evaluation and environmental due diligence reports, as-built documents, shop drawings, product data, O&M manuals, etc.
9. Prepare and make available for review and comment draft operating procedures, training and schedules for maintaining Contractor installed temporary utility equipment.
10. Prepare and make available for review and comment test and balance reports, if required.
11. For Contractor installed temporary utility equipment, maintain a record set of site evaluation and environmental due diligence reports, as-built documents, shop drawings, product data, test reports, balance reports, start-up and shutdown certifications.
12. Develop HVAC, fire/smoke, and emergency power response matrix (Refer to Draft Wedge 2-5 Decommissioning Plan).
13. Conduct decommissioned equipment/system shutdowns, alternate services start-ups, and pass-through services activation.

(c.) System Readiness

1. If required, complete and submit CS prepared Decommissioning Checklists (DCLs) on decommissioned equipment and systems (Refer to Draft Wedge 2-5 DCx Plan).
2. Submit Final DCx operating procedures (include TAB reports for alternate / pass-through services, warrantees, factory testing results, etc.).

3. Install appropriate DCx identification labeling and signage that clearly documents status, interface systems, and other system/equipment impacts.
4. For Contractor installed temporary utility equipment, submit final training plans and training materials, and conduct training for Government operators on temporary MEP equipment.
5. Maintain an updated set of record documentation.

(d.) Verification and Handoff

1. Execute the handoff procedures to document the transfer of operational responsibility for the DCx work to the Government.
2. For Contractor installed temporary utility equipment, perform CS prepared Decommissioning Verification Tests (DVTs) on decommissioned equipment and systems (Refer to Draft Wedge 2-5 DCx Plan).

(e.) Deferred Testing

1. Consult with Government as necessary to measure operational results of systems and equipment handed off from the work of the previous section. Correct identified deficiencies and respond to "lessons learned" within contractual obligations.
2. Perform deferred testing, per 2.5.5.2 (c) and (d) above, as required.

2.6. Availability of Utilities and Sanitary Facilities.

The Government will make all reasonably required utilities available to the Contractor from existing outlets and supplies within the area of renovation, furnished without charge. Interconnections with the existing systems will be designed so as to have no negative impact on the operating portions of the Pentagon. Existing and new toilet facilities in the construction area may also be used at Contractor option so long as the area is provided in new condition at turnover. The Contractor shall carefully conserve all utilities. The Contractor shall make arrangements and pay all costs for telephone facilities desired.

2.7. Safety.

Worker and tenant safety is of paramount importance to the Pentagon Renovation Program. The Contractor is expected to develop a safety plan and program that assures focused attention to this critical effort during the entire duration of the project. Plans should comply with requirements of US Army Corps of Engineers Manual, EM 385-1-1 (http://www.usace.army.mil/inet/usace-docs/eng-manuals/ceso.htm) and OSHA regulations. All Contractor supervisory personnel are considered safety officers, in addition to a designated, full-time Safety Manager that will be present whenever construction is underway. The Contractor's Safety Manager will assure that all personnel assigned to the project are fully aware of applicable elements of the Contractor's safety plan and program and trained to assure compliance. The Contractor shall also be aware that the Pentagon Defense Protective Service (DPS) serves as the coordinator for all Emergency services including response from the Pentagon Medical Clinic, Police, Fire and Ambulance. In Case of Emergency, call (703) 697-5555. Calling 911 will result in slowed response as Arlington County Virginia Police/Fire will have to coordinate with DPS for access.

2.8. Contractor Quality Control/Quality Assurance.

The Contractor is responsible for quality control (CQC) and will establish and maintain an effective quality control system. The quality control system will consist of plans,

procedures and organization necessary to produce an end product, which complies with the contract requirements. The system will cover all planning, design and construction operations, both on-site and off-site.

The Government will maintain a Quality Assurance (QA) team to insure end product quality is in conformance with the developed requirements. The process includes reviews of the plans and specifications for operability, environmental responsibility, and quality control requirements. Activities include reviews of quality control plans, enforcement of contract clauses and quality assurance inspections.. It is expected that there will be very close cooperation between the QA and CQC teams and the teams will interact in a partnering spirit.

2.9. Electronic Data Requirements.

The Government will receive, operate, maintain, manage, and alter renovated Pentagon facilities and infrastructure in perpetuity. In order to perform these functions in a cost-effective manner, the Government makes use of modern Facility Information Management (FIM) technology. Therefore, the Government requires timely, accurate, and consistent electronic data to populate its FIM systems. The Contractor is encouraged to periodically review the current state of FIM technology and practices. Should the current state of FIM technology and/or related industry practices significantly improve during the execution of the Pentagon Renovation Program (PRP), the Government or the Contractor may introduce such information for consideration. If the Contractor proposes an improvement, the Contractor shall provide a written proposal. The written proposal shall include an implementation plan, a cost benefit analysis, and a return on investment projection. The Government reserves the right to incorporate all, some, or none of the proposed recommendations.

2.9.1. Data in this section refers to all drawings, text documents, presentations, cataloging and indexing attributes (i.e. meta-data), and databases used in the design, construction, and commissioning efforts.

2.9.2. The Contractor shall develop, validate, document, and submit the *Wedges 2-5 Electronic Data Standards (EDS).* The EDS shall describe in detail the technical organization and presentation conventions of all its electronic data deliverables. The EDS shall be submitted for approval one month before the first data deliverable. Subsequent submissions of the EDS shall be provided and reviewed with each data deliverable. Revisions to the EDS shall be clearly identified.

2.9.3. All electronic data deliverables shall be provided at the same time as the hardcopy of the same deliverable. All electronic data deliverables shall reproduce an exact reproduction of its respective hardcopy deliverable when printed by the Government.

2.9.4. Provide 2D drawings and 3D wire-frame model source files in Bentley's Microstation Design (DGN) format. Provide all related support and configuration files. Provide source-drawing files linked to database or other documents when beneficial. Provide each monochrome 2D-construction drawings in CAL-Group 4, Type 1, Compressed Raster, and 300-400 dpi format. Include key cataloging and indexing information for each 2D drawing and 3D wire-frame model file in a database table(s).

2.9.5. Provide text and presentation document source files in Microsoft Office Professional formats. Provide each document in PDF format which is book-marked and fully-text retrievable. Text and presentation documents shall contain

a coversheet with key cataloging and indexing information, and a table of contents.

2.9.6. Provide database source files in Microsoft Access format. Provide complete database schema and user manual with database applications. Provide report deliverables generated from database applications in book-marked and fully-text retrievable PDF.

2.9.7. Provide all electronic data deliverables on labeled compact disc (CD). CD label and transmittal shall contain key contract information. Provide Source, PDF, and CAL data on separate CD's. Each CD shall contain a database with key cataloging and indexing attribute table(s). CD's containing PDF and CAL files shall contain a web browser-compatible Graphical User Interface (GUI) with hyperlinks from each row of attributes to the target PDF or CAL file.

2.9.8. Provide electronic data deliverables at appropriate intervals to ensure the electronic formats meet requirements of Government. The Government shall review all documents for compliance with electronic standards requirements and EDS of this section. The Contractor shall make any changes to document submittals required to meet the electronic data standards stated herein at no additional cost to the Government.

2.9.9. Provide 24 hours a day/ 7 days a week (24/7) access to all progress and final data deliverables via a secure Extranet hosted by the Contractor. The Extranet will consist of one or more applications that will enable the Pentagon Renovation Program, from the executive management level to the project staff level, to do overseeing, planning, budgeting, designing, administering, monitoring, storing, documenting and exchanging data.

- The Extranet shall be able to roll up data and be presentable to senior management for project oversight.
- The Extranet shall provide a uniform and disciplined form and process for organizing project documentation.
- The Extranet shall provide authorized project team members with task management including overdue information.
- The Extranet shall provide a collaborative work platform that enables PRP members and outside individuals (government and contractors) on-line, simultaneous, access to project data.
- The Extranet shall provide access to all project data including computer aided design (CAD) files and/or images of the CAD files.
- The Extranet shall allow public access to *specific* information identified by the PRP.
- The Extranet shall demonstrate proper and sufficient security protection for all PRP data, which may be used for litigation purposes. The contractor shall demonstrate a successful backup and restoration plan.
- All Extranet hosted data shall be commissioned and the Extranet dissolved at Program conclusion.

2.10. Construction Site Office Facilities and Laydown Areas.

2.10.1. *General*. Available lay-down and storage areas are extremely limited at the Pentagon. Deliveries of materials and removal of demolition debris must be closely monitored to assure no excessive build-up of materials. No privately owned vehicle parking is available on the Pentagon Reservation except inside the

fenced Contractor's staging area where a limited number of privately owned vehicle parking spaces will be made available for Contractor's management staff and their visitors. Additionally, limited visitor parking inside the Pentagon Renovation Complex is available for Contractor's management staff attending Government-scheduled meetings and conferences. Only construction vehicles supporting the construction effort that have been officially cleared by the Pentagon Renovation Security Office may temporarily park in a designated area on the Pentagon Reservation or within a designated area inside the fenced construction area.

2.10.2. Areas designated for construction laydown on the Pentagon Reservation must be coordinated well in advance of their use, with the Government. A brief description of available areas is keyed to the depiction of these areas on the Existing Conditions drawings
(Dwg. #G0-04).

2.10.3. *On-Site Office Facilities*. The Contractor shall provide all temporary facilities on the Government-designated office site to house an integrated Government and Contractor project management team. Facilities must be co-located to facilitate true partnering. Facilities and access must be ADA-compliant. Facilities must be equipped with running warm and cold water, have sufficient lighting, natural and artificial, and must be heated and air-conditioned throughout the respective season. The Contractor shall fence in the integrated office site to ensure controlled access. The Contractor shall be responsible for all repair and upkeep of these on-site facilities. The Government will provide cleaning service for said facilities. The Government will provide furniture, office equipment and communications systems for the Government and Contractor personnel. The following minimum standards are to be provided:

- Conference Room for 20 people that is well insulated from noise inside and outside. Minimum 4 enclosed offices with lockable door for Government personnel.
- Open-space to allow installation of 20 - 6'x8' cubicles for Government personnel and cubicle space for the Other Government Contractors (OGCs) who will be partnering with the team.
- Men's and Women's sanitary facilities with shower.
- Kitchenette equipped with sink, cabinets, frost-free refrigerator with a freezer section, and microwave.

2.11. Governing Codes, Regulations, Permits & Approvals.

2.11.1. The Contractor must comply with the current requirements of the Virginia Uniform Statewide Building Code (VUSBC), Virginia Statewide Fire Prevention Code and Virginia State Health Code requirements in the design and construction of this project. Current is defined as the code version in effect at the time of the initial award. For the contract options, current is defined as the code in effect at award of the option. The authority having jurisdiction for building codes is Washington Headquarters Services, Federal Facilities Division (FFD); for Fire and Life Safety issues, the authority having jurisdiction is Washington Headquarters Services, Safety and Environmental Management Division (SEMD). The Contractor must follow the Accessibility Guidelines of the Americans with Disability Act (ADA) and the Uniform Federal Accessibility Standards (UFAS). The most stringent code of these two will govern in the event

of a discrepancy. Emergency Services are provided by Arlington County and they will be provided the opportunity to review the designs to insure interoperability and safety of their response personnel.

2.11.2. *Internal Pentagon Permits*. No local or state permits are required on the Pentagon Reservation. However, roads, transportation, disposal, hazardous waste handling and other work performed outside the Pentagon Reservation is covered by other provisions within this contract. Washington Headquarter Services issues permits for the following activities:

(a.) Air Quality (temporary boilers)
(b.) Antenna Installation
(c.) Hazardous Material Abatement, Lead Exposure and Cable Pulling
(d.) Welding, Cutting or Brazing
(e.) Confined Space Entry
(f.) Erosion Control
(g.) Space Use
(h.) Facility and Aboveground Storage Tank
(i.) Utility Outage
(j.) Excavation
(k.) Roof Access

2.11.3. *Regulatory Agencies.* The regulatory requirements of public agencies with jurisdiction over Pentagon construction activities will vary depending on the design and construction techniques proposed by the Contractor. Specific regulatory requirements are derived from the following. The Pentagon is a designated structure on the National Historic Register. The Pentagon outermost (E-Ring) and innermost (Center Courtyard) facades are specifically designated on the National Register as historically significant. Also included are Mall Terrace, River Terrace and the distinctive pentagonal shape and concentric ring plan of the Pentagon. Therefore all alterations, repairs or additions to the building must be respectful of the historic elements. In general, the Secretary of Interior's Standards for Rehabilitation applies. The Renovation Office has received Masterplan approval from all regulatory agencies for the Pentagon Renovation program. Deviations or additions to that approved Masterplan will require review and or approval by the relevant regulatory agencies. The Contractor will work in conjunction with the Historic Preservation Specialist at the Pentagon Renovation Office and provide the necessary drawings and supporting materials necessary to obtain all required approvals. The Contractor will be responsible for obtaining NCPC and other required agency's' approval for all elements/features of the design, repair and construction affecting historic considerations of the building. The Contractor will be responsible for obtaining approval of their design from the National Capital Planning Commission (NCPC), the Commission of Fine Arts (CFA) and the Commonwealth of Virginia Department of Historic Resources (DHR).

2.12. Metric Measurements.

All submittals to the Government shall be in metric measurements. The Contractor shall use ASTM E621, Standard Practice for the Use of Metric (SI) Units in Building Design and Construction, and the Metric Guide for Federal Construction (Construction Metrication Council of National Institute of Building Sciences, Washington, DC) as the basis for establishing metric measurements used in submittals.

2.13. Construction Equipment Restrictions.

The Contractor is required to submit applications to the FAA requesting an Aeronautical Determination Study for all cranes and other equipment that exceed the height of the existing Pentagon structure (reference FAA Aeronautical Study 92-AEA-0653-OE) or that otherwise would interfere with Pentagon helicopter traffic. Requests shall be submitted a minimum of 30 calendar days in advance of the equipment arrival on site; however, the FAA advertises that studies can take 4-6 weeks and the Contractor is encouraged to submit request as far in advance as possible. Equipment determined to exceed obstruction standards may require longer to be approved, may require supplemental measures to be approved, or if too tall, may not be approved. Requests to the FAA shall be submitted on FAA Form 7460-1 to: Federal Aviation Administration, Eastern Region, Airspace and Procedures Branch, AEA530, Federal Building, John F. Kennedy International Airport, Jamaica, New York 11430. The equipment shall not be erected or operated on site without the FAA determination. In addition, when scheduling work requiring the use of cranes, the Contractor shall provide the Pentagon Heliport Tower with not less than seventeen (17) calendar days advance notice.

2.14. Work Stoppages for Official Ceremonies.

The Contractor shall provide for work stoppages as directed by the Contracting Officer for official ceremonies in the facility. This will be dealt with on a case by case basis. For proposal preparation purposes, the contract should assume 130 hours of delay as a result of official ceremonies.

2.15. Project and Safety Signs.

Project and safety signs shall be erected within 15 days after the start of each phase of work. Size and layout of the sign shall be as mutually agreed by the Contractor and Government. There shall be one project sign that identifies both the Government and Contractor, and subcontractors, if desired. Data for the safety sign shall be updated daily. The Contractor shall also provide signage rerouting building pedestrian traffic around work zones and provide information signage updating the building occupants on the progress of the renovation in coordination with the Government. Upon completion of the project, the signs shall be removed from the site. No other project or contractor signs may be installed by the Contractor or sub-contractors without the express written approval of the Contracting Officer.

2.16. Exterior Wall Options.

2.16.1. *Exterior Walls Inside Of Building Perimeter Repair Option*: Provide repairs to exterior concrete walls (i.e. light wells, A/E Drive and Center Courtyard) that will restore the structural and environmental integrity of these walls. Extent of repairs is identified on the Architectural Concept Plans. Performance criteria for repairs are defined in the Space Criteria – Master matrix. Actual repair is estimated to be 20% of wall surface exclusive of windows. Repairs must provide restoration equivalent to the present Wedge 1 repairs, which include:

- Solid and durable walls at and adjacent to all visible defective areas.
- Chip out all loose concrete at and adjacent to defective areas.
- Clean and prime all exposed rebar.
- Apply bonding agent to entire surface of defect.
- Apply patch material to defect (make all reasonable efforts to match the color of the patch material to adjacent original concrete).

- Create wood form "wedge" to match adjacent wall profile.

The extent of repair work required and the means and methods the Contractor shall use will be coordinated and submitted to the Government prior to commencing the repair.

This Center Courtyard façade is one of the historical elements of the Pentagon.

2.16.2. *Exterior Façade Stone Joint Repair and Exterior Limestone Cleaning Option:* The Contractor shall remove and/or repair all missing, loose, and ineffective grout in stone joints with new weather-tight grout to provide for a 20 year warranty. Appearance, color, texture, and tooling of new grout joints must match existing sound grout joints as well as match any repairs already completed to the Wedge 1 area of the building. Extent of repair is identified on the Architectural Concept Plans. Repair is estimated as 15% of the stone joints. There is approximately 6 linear meters of joint per 1.0 square meter of stone wall surface area exclusive of windows.

The extent of repair work required and the means and methods the Contractor shall use will be coordinated and submitted to the Government prior to commencing the repair. This façade is one of the historical elements of the Pentagon.

The Contractor will clean the exterior limestone façade by an approved non-destructive method.

The Contractor shall include the replacement of limestone in their plan, if required, after completing the survey. This option is only for the joint repair, but if repairs require the replacement of damaged limestone, a price will be negotiated for the replacement of limestone upon approval by Government.

3.0. PROJECT PROGRESS AND GOVERNMENT INSIGHT

3.1. Construction Progress Photos.

Submit construction progress photos taken at monthly intervals from start of work through completion. Uniform locations are to be mutually determined which will fully represent the magnitude and progression of work. Digital photos in JPEG format shall be used. Photos are to be clear and of good contrast when printed in 8-1/2 x 11 inch format.

3.2. Project and Production Controls.

3.2.1. The Contractor shall provide the integrated scheduling for all aspects of the work, cost curve and justification, earned value analysis, electronic document control, production controls and allow the Government independent access to all project and production controls including the ability to do "what if" drills. The Contractor will take the lead on the scheduling of this project while keeping the Government informed and involved. Schedules must make sense and will be an active and effective management tool for all parties. The following paragraphs provide additional details on these project and production controls requirements.

3.2.1.1. *Integrated Project Schedule (IPS*) – integrates all aspects of the work, from early design activities and tenant move-out through tenant move-in, using a CPM (critical path method) schedule that is cost and resource loaded and logic driven, with minimal arbitrary constraints, and includes all OGC's schedules. The IPS shall be of sufficient detail to 1) provide interface points with the OGC's schedules, 2) track progress at the activity level, 3) allow for the early detection of problem areas, 4) establish major project incremental milestones, 5) incorporate production controls into schedule with subcontractor input and, 6) enable the equitable time impact analysis of scope changes. The IPS shall also include a change control procedure that incorporates pending changes as they are issued, and determines the estimated time impacts to the schedule. Authorized changes should be integrated into the schedule and cost curve within 30 days of notice to proceed. The IPS shall interface with the Pentagon Renovation Program's Work Breakdown Structure (WBS). The current Pentagon Renovation Program Control Procedures manual is available from the Contracting Officer. The Government currently uses Primavera Project Planner (P3) but may change if the Contractor provides the software and training to Government staff.

3.2.1.2. *Reviews and Coordination* – The Government will conduct monthly schedule reviews with the Contractor no less than 5 working days after Contractor's end of month update. The monthly updated schedules shall be based on the Contractor's progress and shall incorporate progress of OGC's. The Contractor will assist the Government in developing meaningful metrics from these reviews to be used at monthly Pentagon Renovation Program reviews, including variances from scheduled events. The Government will change its current schedule of monthly reviews to a day each month that is best supported by the contractor's existing monthly reporting system.

3.2.1.3. *Project Milestones* – The Contractor must track the following milestones in the integrated project schedule and provide the capability to develop and print a "rollup" report consisting of these for the Government:

- Temporary mechanical, electrical, plumbing complete

- Construction Barriers complete
- Temporary communications complete
- Long lead items identified
- Long lead items all ordered
- Long lead items all received
- Tenant move-out starts
- Demolition and abatement starts
- Demolition and abatement complete
- Contractor schedule complete
- Critical path analysis completed by contractor
- Unique milestones identified for project and entered into milestone schedule
- Tenant surveys start
- Commissioning plan complete
- All tenant requirements completed
- All move-in tenants identified
- All design intent drawings completed
- All furniture requirements identified
- Furniture deliveries start
- Furniture deliveries complete
- Punch list identified
- Punch list completed
- Tenant move-in starts
- All manuals received
- All manuals and operations booklets received
- All required training complete
- All wedge work complete
- Final contract payment made
- Option exercise period for next wedge begins
- Bilateral "option out" period ends for next wedge

3.2.1.4. *Integrated Project Plan (IPP)* – The IPP shall define the approach to the execution of the Wedges 2-5, including de-commissioning, construction design, demolition, abatement, phasing, core and shell, tenant fit out design and construction, and commissioning. The IPP shall also include all significant actions associated with Government actions and Other Government Contractor actions that affect the Wedges 2-5 project. The actions included in the IPP is expected to be a much greater number of actions and events than the number of milestones specified in Section F of the contract. It is the intent of the Government that both the Government and Contractor utilize the IPP as a major management tool. It is therefore imperative that the IPP is concise, easy to follow, and structured by options.

3.2.1.5. *Cost Curve* – projects actual costs incurred by the Contractor for the design and construction of the project and includes justification for the curve.

3.2.1.6. *Earned Value (EV) analysis* – Earned value is a management technique that relates resource planning to schedules and to technical cost and schedule requirements. The Contractor shall statistically assess schedule and cost results on the project as early as 3 months into the project. Contractor shall incorporate the approved EV methodology on the W2-5 Contractor's portion of

work, to compare actual performance and cost against the project schedule and cost curve, so as to detect problems and propose solutions as early as possible. The Pentagon Renovation Program will evaluate EV for any OGCs, and will combine with the W2-5 Contractor's if appropriate. Provide access to information on projecting resource requirements early in the project to track performance versus resources from planned to actual throughout project.

3.2.1.7. *Electronic document control* – tracks official project documentation (such as project correspondence of submittals, change orders, etc.) between the Contractor and the Government. Throughout project, provide access to the electronic document controls to communicate between the Contractor and the Government. The Government currently uses Expedition but may change if the Contractor provides the software and training to Government staff.

3.2.2. *Submittal requirements*:

3.2.2.1. The Contractor shall submit their preliminary design and construction schedule, covering the first 90 days (minimum) of contract, for review and coordination with the Government prior to construction (including demolition/abatement and temporary utilities) commencing. These preliminary schedules shall cover all planned and on-going activities until an integrated design and construction schedule and cost curve can be developed and submitted.

3.2.2.2. The Contractor shall submit their Earned Value methodology for approval by the Government.

3.2.2.3. Provide monthly status reports of the Earned Value (EV) analysis graphs. Provide a narrative for each schedule update, outlining critical path analysis, change order work and work strategies. Include in this report monthly analyses of cost and schedule trends and suggested recovery options.

3.2.2.4. The Contractor shall update the Integrated Project Plan for Wedges 2, 3, 4, and 5 on a semiannual basis, or more frequently in the event of major program changes.

3.2.2.5. The Contractor shall maintain a clear visual record of the original schedule and cost tracking to determine how the project has changed over time. Changes over time shall be shown as deviations off the original baseline schedule.

3.2.2.6. The Contractor shall incorporate production control methods that benefit the project into the Integrated Project Plan.

4.0. OTHER GOVERNMENT CONTRACTS

Other government contracts listed in this Section include two main types. Those that are integral to the Wedge 2-5 design and construction project, thus requiring on-going coordination by the Contractor. The second type are ancillary contracts that occur on the Pentagon Reservation and are outside the Wedge 2-5 project, yet could indirectly affect the W2-5 project. Some coordination is required between the Contractor and these on site ancillary contractors. The ancillary projects noted in this section are those that are currently known or planned.

4.1. Telecommunications.

4.1.1. *General.* Project Manager, Information Management and Telecommunications (PM, IM&T) with an Other Government Contractor for Above Ground Telecommunications Backbone (ATB) is charged to Engineer, Furnish, Install and Test (EFI&T) a communications network infrastructure to support the above ground portion of the Pentagon. This will result in a totally integrated Information Management and Telecommunications (IM&T) Backbone System and Infrastructure that will provide all users within the Pentagon building with common telecommunications services; support the distribution of both classified and unclassified voice, video, and data requirements for Information Systems (IS) and users needs; conform to modern telecommunications practices and standards; and provide scalability and flexibility to allow for incorporation of foreseeable future technologies.

4.1.2. *Contractor Role*. The Contractor shall design and construct a telecommunications facilities and pathways infrastructure in accordance with IM&T Facility Performance Requirements. This will include cable tray and protected distribution system in the corridors, telecommunications closets, communication equipment rooms, wedge rooms and other areas as specified during design. It will also include all supporting utilities, such as HVAC, electrical, fire protection, grounding, etc. For tenant organizations that employ intensive Information Technology systems the Contractor shall ensure the design and construction for such tenant facilities accommodates both the IM&T infrastructure and tenant requirements. For wedges allocated space for radio, cable television and data server rooms the Contractor shall identify all requirements and design and construct the facilities to support tenant and IM&T infrastructure needs. For tenant fit out, the Contractor will be provided requirements by PM, IM&T for telecommunications consolidation boxes, termination boxes and interconnecting pathways derived from tenant survey data. This data may be provided to the Contractor upon his request during TFO design. The Contractor will be responsible for coordinating and integrating the IM&T schedules to include coordination of acceptable milestones.

4.1.3. *PM, IM&T role*. PM, IM&T (GD-WTS) will EFI&T network hubs and switches in telecommunications infrastructure facilities (wedge rooms, communication equipment rooms and telecommunications closets) necessary to establish a telecommunications data backbone through out the renovated Pentagon. Additionally PM, IM&T will EFI&T hardware elements of the Pentagon administrative voice network, command and control voice networks and the video networks necessary to extend those systems throughout the renovated Pentagon.

PM, IM&T will provide and install all copper cable, fiber optic cable, coax cable and termination equipment for installation from and to major telecommunications and tenant facilities via Contractor provided cable tray and protected distribution system (PDS) pathways. Within tenant areas PM, IM&T will provide and install all copper cable, fiber optic cable, coax cable and termination equipment from telecommunications closets to tenant desktop via a Contractor provided column box intermediate consolidation/distribution points. PM, IM&T will terminate and end to end test all installed cabling. Where necessary PM, IM&T will add extension to provided cable tray and PDS to facilitate installation to tenant desktop. PM, IM&T will extend electrical power from Contractor provided power panels for equipment rack power in all communications rooms.

To satisfy tenant requirements PM, IM&T will conduct extensive physical and logical surveys of tenants to gather a requirements baseline, develop a physical and logical network design for both unclassified and classified data, voice and video, establish user integration and interface parameters, develop bill-of material data, integrate installation with design/build construction, and provide necessary quality assurance and testing to demonstrate network operations.

4.1.4. *Other IM&T Roles*. Additionally PM, IM&T Product Teams will EFI&T telecommunications systems and perform legacy system moves and reconnections associated with the following facilities/spaces: (1) Command and Operations Centers, (2) General Purpose Switch Room, (3) Command and Control Switch Rooms, (4) Pentagon Consolidated Technical Control Facility, (5) Network Systems Management Center, (6) C2 ADP (Command and Control Automated Data Process), (7) Business ADP Center, (8) South Point of Presence (POP), (9) 5- Electronic Switching System (5-ESS) Administrative Switch, (10) Service Server Rooms, (11) Radio Rooms, and (12) Consolidated Message Service Centers, Joint Staff Special Areas, Conference rooms, etc. Additionally PM, IM&T and/or its supporting contractors will design and install audio-visual production and presentation systems and video teleconferencing systems in command and operations centers and executive suites. The Contractor will be responsible for ensuring the facilities in Wedge 2-5 are designed and constructed to allow PM, IM&T and/or its supporting contractors to install and make operational these systems.

4.1.5. *Audio /Visual Contracts*. The Government currently plans to award a number of audio/visual contracts for equipment to be added to the Core and Shell of the Pentagon. It is possible that each Military Service will have a separate contract for the design, purchase and installation of that Service's audio/visual requirements. The Contractor will be responsible for designing and constructing the infrastructure of the Core and Shell to support the integration of the Government's audio/visual requirements. This will include electrical, HVAC, EMCS, acoustical (wall and ceiling), lighting considerations and furniture as required. Audiovisual equipment will be GFE. The Contractor will have to coordinate with the Government and the audio/visual contractors during the Tenant Fit Out design and construction phases. None of these audio/visual contractors have been identified at this time. The Contractor must also provide the Government timely notice of any impact the audio/visual systems may have on its core and shell design or construction activities.

Audio/visual systems for certain Facilities will be designed and installed under direction of the PM IM&T Command Center's Team.

PM IM&T specifically identified these areas in System Design documents that have been developed and has gained approval for the Visual Information Systems Concept of Operations (VISCONOPS). The VISCONOPS architecture is designed to ensure uniformity of audio/visual operations and facilitate interconnectivity between the command and operations centers. The PM IM&T will ensure the implementation of this common audio/visual architecture throughout the renovated Pentagon.

INFORMATION MANAGEMENT & TELECOMMUNICATIONS RESPONSIBILITY MATRIX

A	Advise (Provide Information)
R	Indicates Responsibility for Task Accomplishment
C	Indicates Task Coordination is Required
X	Time Frame

BB	Backbone
CCT	Consolidated Computers Team
TCF	Technical Control Facility
SW	Switch
C2C	Command & Control Centers
AVS	Audio Visual Systems

Note: PM, IM&T Representative is primary Point of Contact for all actions involving listed OGCs

GOVT/IM&T	Other Government Contractors (OGC)						CONTRACTOR	Task	Task Phase						
	BB	CCT	TCF	SW	C2C	AVS			Pre DID Phase	DID Phase	Core & Shell Design	Core & Shell Construction	TFO Design	TFO Construction	IM&T Install
A	A						R	Implement Telecommunications Infrastructure Facility and Pathways Requirements IAW IM&T Facility Performance Requirements date October 15, 1999 and HSMM Utility Concept Plan	X						
A		A	A	A	A	A	R	Identify Information Management and Telecommunications (IM&T) Intensive Facility Requirements	X						
A		A	A	A	A	A	R	Analyze IM&T Intensive Facility Telecommunications Requirements	X						
A	A						R	Design & Prepare DID Drawings for Unclassified Telecommunications Infrastructure Facilities		X	X				
A	A						R	Design & Prepare DID Drawings for Classified Telecommunications Infrastructure Facilities		X	X				
A	A						R	Design & Prepare DID Drawings for Unclassified Telecommunications ATB Pathways		X	X				
A	A						R	Design & Prepare DID Drawings for Classified Telecommunications ATB Pathways		X	X				
A	A	A	A	A	A	A	R	Design & Prepare DID Drawings for Unclassified Special & Dedicated Telecommunications Pathways in Addition to ATB		X	X				
A	A	A	A	A	A	A	R	Design & Prepare DID drawings for Classified Special & Dedicated Telecommunications Pathways in Addition to ATB		X	X				
A					A		R	Design & Prepare DID Drawings for Radio Rooms		X	X				
A	A				A	A	R	Design & Prepare DID Drawings for CATV Room (Head-end Facility)		X	X				
A		A					R	Design & Prepare DID Drawings for Server Room(s)		X	X				
A	A	A	A	A	A	A	R	Design & Prepare DID Drawings for IM&T Intensive Facilities		X	X		X		

GOVT/IM&T	Other Government Contractors (OGC)						CONTRACTOR	Task	Task Phase						
	BB	CCT	TCF	SW	C2C	AVS			Pre DID Phase	DID Phase	Core & Shell Design	Core & Shell Construction	TFO Design	TFO Construction	IM&T Install
R	R	R	R	R	R	R		Review DID Packages. Provide clarifying comments as needed		X					
A	A	A	A	A	A	A	R	Revise DID Packages		X					
A	A	A	A	A	A	A	R	Construct Telecommunications Infrastructure Facilities				X			
A	A						R	Construct Telecommunications Pathways- Unclassified & Classified ATB, Unclassified and Classified Special & Dedicated				X			
A		A	A	A	A	A	R	Construct IM&T Intensive Facilities				X		X	
R								Perform Quality Assurance Oversight of IM&T related construction				X		X	
R	R	R	R	R	R	R	C	Survey Tenant Fit-out (TFO) Telecommunications Requirements					X		
R	R	R	R	R	R	R	C	Analyze TFO Telecommunications Requirements					X		
R	R	R	R	R	R	R		Develop Passive and Active Telecommunications Design for TFO Requirements					X		
A	A						R	Develop DID for TFO Telecommunications Implementation (Consolidation boxes, termination boxes, etc.)					X		
R	R	R	R	R	R	R		Review DBC DID for TFO Telecommunications Implementation					X		
A	A	A	A	A	A	A	R	Revise TFO DID Packages as needed					X		
C	C						C	Coordinate TFO Telecommunications Implementation (Consolidation boxes, termination boxes, etc.)						X	
A							R	Implement TFO Actions						X	
A	A	A	A	A	A	A	R	Commissioning of Utilities Supporting Telecommunications Facilities and Pathways				X			
R	R							Install Passive Telecommunications (Media- Fiber Optic, Copper, etc.)							X
R	R							Install Active Telecommunications Systems (Routers, switches, etc.)							X
R		R	R	R	R	R	C	Install IM&T Systems in IM&T Intensive Areas							X
R								Provide IM&T Schedules and Milestones			X	X	X	X	X
C							R	Coordinate and Integrate IM&T Schedules and Milestones in Overall Project Schedules			X	X	X	X	X
C							R	Coordinate Exit Facility Dates							

4.2. Furniture.

4.2.1. *Scope*. All furniture will be provided and installed by other Government contractors. The Contractor will accomplish the tasks listed in the paragraphs below in order to ensure that furniture requirements are included in the design and construction of tenant spaces. The tasks to be performed by the Contractor related to furniture are described in the paragraphs below. The bullets list the actual tasks.

4.2.2. *Phase 1*: Contractor Furniture Tasks to be accomplished during the Design Intent Documentation (DID) Preparation and Approval Phase.

4.2.2.1. The Government will purchase new systems furniture (workstations) for tenants in each Wedge. Not more than six systems manufacturers will participate in each Wedge. The Government will provide to the Contractor a cell library (electronic version) of each manufacturer's typical workstation configurations. The Contractor will use these cell libraries to prepare drawings in each DID package showing the proposed systems furniture layout for each tenant space.

- *Contractor furniture Task 1.* Using manufacturer specific cell libraries provided by the Government, the Contractor will prepare drawings for each DID (tenant requirement) package showing workstation layouts for that tenant space. These workstation layout drawings will be provided in the initial DID package and will be revised as necessary by the Contractor during the DID development and approval process period.

4.2.2.2. The Government will provide to the Contractor specifications for new and existing conventional (desks, chairs, file cabinets etc.) furniture and equipment to be installed in each tenant space. The Contractor will use this information to prepare drawings in each DID package showing the location and footprint of all freestanding furniture and equipment to be installed in each tenant space.

- *Contractor furniture Task 2.* Using information and specifications provided by the Government, the Contractor will prepare drawings for each DID (tenant requirement) package showing freestanding (conventional desks, chairs, file cabinets etc.) furniture and equipment to be installed in each tenant space. These freestanding furniture and equipment drawings will be provided in the initial DID package and will be revised as necessary by the Contractor during the DID development and approval process period.

4.2.3. *Phase 2*: Contractor furniture tasks to be accomplished during the TFO Design Phase. OGCs providing systems furniture will prepare detailed installation drawings showing the components and exact configuration of each workstation to be installed in each tenant spaces. Once completed and approved, these installation drawings are used for two important purposes - to prepare the Bill of Materials for furniture orders and as a set of detailed instructions to be used by their installers during the installation of the systems furniture. Furniture installation drawings are prepared by the OGCs during the same timeframe that tenant fit out designs are developed by the Contractor. Furniture installation drawings must be based on information (e.g. HVAC ductwork locations that will interfere with power poles) contained in the Contractor prepared tenant fit out designs. The Contractor prepared tenant fit out designs must be based on information (e.g. number of electrical circuits required for workstations and required junction box locations.) contained in the Government contractor prepared furniture installation

drawings. The Government has a need to ensure that furniture installation drawings are coordinated with tenant fit-out designs during their concurrent development.

- *Contractor furniture Task 3*. Using the appropriate Government CAD standards, provide each participating systems furniture manufacturer with Core and Shell and DID electronic drawings of each Wedge section. . This electronic information will be provided not later than 60 days after DID approval (by tenant agency) for each Wedge section. These CAD drawings will be used by furniture manufactures as an electronic reference for the initial development of furniture installation drawings. The CAD information will be provided by the Contractor during a "kickoff" coordination meeting scheduled and conducted by the Contractor with each participating systems furniture manufacturer in that Wedge section. The product from each "kickoff" meeting will be a detailed list of TFO design and furniture coordination issues that must be resolved along with a recommended solution for each issue.
- *Contractor furniture Task 4*. On a periodic basis - but not less than at the 65% and 100% complete stages - provide each participating systems furniture manufacturer with updated TFO designs in CAD format. These will be used by the furniture manufacturers as reference background layers during the concurrent development of furniture installation drawings.
- *Contractor furniture Task 5*. On a periodic basis - but not less than 3 times, schedule and conduct onboard review coordination meetings with each systems furniture manufacturer. An onboard coordination meeting must be held (1) not later than 30 days after each furniture "kickoff" meeting; (2) not later than 30 days after the delivery of each 65% TFO Design CAD package; and (3) not later than 30 days after delivery of each 100% TFO Design CAD package. The purpose of these meetings is to coordinate furniture installation drawings with TFO design packages. The product of each of these meetings will be a detailed list of furniture and TFO design integration issues that must be resolved along with a recommended solution for each issue.

4.2.4. *Phase 3*: Contractor tasks to be accomplished during and after the TFO construction Phase. Although other Government contractors are responsible for the delivery and installation of furniture, close coordination with the Contractor is required in order to ensure that furniture delivery and installation schedules are coordinated with the Contractor construction schedule. Additionally, the Contractor's electrical subcontractors will be responsible for wiring OGC furniture whips into the Contractor provided electrical junction boxes located above the dropped ceiling or beneath the raised floor and for ensuring that an adequate number and type of electrical circuits are available at the junction box.

- *Contractor furniture Task 6*. Provide updated CAD drawings documenting all approved design and construction changes that will affect system furniture installation drawings.
- *Contractor furniture Task 7*. Wire system furniture electrical whips into Contractor provided electrical junction boxes.
- *Contractor furniture Task 8*. Participate in troubleshooting and testing processes for electrical circuits providing power to systems furniture in order to isolate and correct possible junction box wiring problems identified during the furniture punch list process.

4.2.5. *Program wide Furniture Areas of Responsibility*. The matrix below is provided to show respective areas of Government and Contractor responsibility and coordination for Furniture related tasks.

FURNITURE RESPONSIBILITY MATRIX

R	Indicates responsibility for task accomplishment
C	Indicates task coordination is required

Government	Contractor	Task
R		Determine Program Furniture Requirements
R		Negotiate with UNICOR
R		Establish and Manage Furniture Contracts
R		Coordinate with Tenants on selection of furniture manufacturers
R		Develop Budget and Spending Plan for Furniture
R		Coordinate with Tenants on all furniture requirement issues
R		Obtain Cell Libraries from Systems Furniture Manufacturers
R		Obtain Existing Furniture and Equipment Specifications from Tenants
R		Order Furniture Services and Products
C	R	Prepare DID drawings showing system furniture layouts in tenant spaces
C	R	Prepare DID drawings showing new and existing freestanding furniture and equipment in tenant space
C	R	Provide CAD drawings of DID packages to Systems Furniture Manufacturers
C	R	Schedule and Conduct Design "Kick off" meetings with Systems Furniture Manufacturers
C	R	Provide CAD drawings of TFO design updates
C	R	Schedule and Conduct design coordination meetings with Systems Furniture Manufacturers
R	C	Review and Approve Furniture Installation Drawings
R		Review and Approve Furniture Bill of Materials
R		Pay for Furniture Design Services
R	C	Award Fee Determination for Furniture Installation Drawing Preparation
R		Order Furniture
C	R	Provide CAD drawings of all approved design and construction changes
C	R	"Broom sweep" renovated space prior to turn over of renovated space for furniture delivery
C	R	Wire Systems Furniture whips into Electrical Junction Boxes
C	R	Resolve Junction Box Electrical circuit problems for Workstations
R	C	Schedule coordination between Furniture Deliveries (multiple vendors) and TFO construction deliveries
R	C	Furniture Installation schedule coordination/problem resolution
R	C	Furniture Installation issue/ problem resolution with IM&T
R	C	Furniture turnover /issue resolution with tenants
R		Furniture Punchlist development
R		Furniture Punchlist resolution
R	C	Award Fee Determination for Furniture Installation
R		Payment Furniture for delivery and Installation
R		Payment Issue Resolution

4.3. Tenant Moves.

The Government will procure move services as a separate government contract. The Government will coordinate and move the tenant into their new offices in accordance with the Contractor's basic timeline. The Contractor shall accommodate all pre-move walkthroughs to insure the space is ready for occupation.

To successfully manage expectations and preparation we have found that increasingly precise refinement of move-in dates as the time of move-in approaches, is helpful. The following indicates the progressive precision that is required.

Move Out Schedule Plan	
18 months out	Calendar year quarter move-in is planned
12 months out	Month that move-in is planned
6 months out	Half of month that the move in is planned
3 months out	Week of the month that the move in is planned
1 month out	Exact days for move start and completion
14 days out	Time of day movers will begin move

4.4. Energy Management and Control Systems (EM&CS).

The Government is procuring EM&CS under a separate contract. The primary function of the EM&CS is the control of the HVAC systems and to interface with several subsystems. These include the fire alarm system, lighting control, vertical transportation monitoring, electrical system monitoring and control, plumbing systems monitoring, and miscellaneous monitoring and control of other systems. All subsystems must be METASYS compliant. The Contractor shall design the EM&CS to meet the level of monitoring and control indicated in the HVAC Standard Sequence of Operations Manual (available from the Contracting Officer). Where systems are provided that are not addressed by this Manual, the Contractor shall design their level of control and monitoring comparable to similar systems in the Manual. The Government has contracted with Johnson Controls, Inc. to provide the EM&CS.

EM&CS will allow the Government to manage, monitor and meet the energy conservation and sustainability goals as well as provide monitoring and control capabilities for the life safety in the Pentagon. Consequently all HVAC controls shall be METASYS and all other equipment necessary to meet the performance criteria (such as space temp, humidity and Energy Budget) shall be METASYS compliant.

The Pentagon shall be renovated to provide basic control capability and be configured to facilitate subsequent upgrades of monitor and control capabilities. JCI shall be responsible for the detail design of the EM&CS based on the design of the Contractor. The Contractor shall work with JCI to ensure an integrated and fully operational control system to satisfy the performance criteria.

The matrix below is provided to show respective areas of Government and Contractor responsibility and coordination:

EM&CS RESPONSIBILITY MATRIX

A	Advise (Provide Information)
C	Indicates Task Coordination is Required.
I	Install
R	Indicates Responsibility for Task Accomplishment
"Provide" means to furnish and install.	

OGCs Defined	
Cx	Commissioning Contractor
EMCS	Energy Management Control System Contractor(s)

GOVERNMENT	Other Government Contractors (OGC)		CONTRACTOR	Task
	Cx	EMCS		
A	A	C	R	Design Building Automation System
A	C	C	R	Control Diagrams and Sequences of Operation
A		R	C	Provide DDC Panels
A		R	C	Provide Actuators
A		R	I	Furnish Control Dampers
A		C	R	Provide power for EMCS
A		R		Provide Sensors
A		C	R	Provide Weld-o-lets necessary for EMCS
A		R	I	Furnish control valves
A	C	C	R	Design Metering System for Measurement and Verification
A		R	I	Furnish Meters
A		R		Provide Control Wiring
A	C		R	Prepare System Design Intent Documents *These documents are continually updated*
A		C	R	Provide Fully Addressable Fire Detection and Alarm System
A		R	C	Review and Price Control Systems. *Iterative Process*
A		C	R	Construct EM&CS Infrastructure & Pathways
A		R	C	Install Control Hardware
A	C	R	C	Install Software/Programming
A	C	R	C	Performance Verification Tests
A		C	R	Coordinate and Integrate Controls (EMCS) Schedules and Milestones in Overall Project Schedules
A		C	R	Measurement and verification

4.5. Building-Wide Contracts Responsibilities.

The Contractor will generally perform coordination in accordance with the Responsibility Matrix - Building-Wide Contracts and the applicable clauses in this contract. The paragraphs below provide some specific information in regards to some of the building-wide contract coordination responsibilities.

4.5.1. *Escalator and Elevator Contracts*. The Government anticipates purchasing the escalators and elevators for the contract under a contract with an OGC. The Elevator OGC will also install the escalators and elevators. The Contractor must coordinate with the Government and Elevator OGC to ensure the Government places orders for the required elevators and escalators in a timely manner. The Contractor must also directly communicate with the Elevator OGC to coordinate all work site activities to avoid delays to any project contract.

4.5.2. *Flush Valve/Lock/Material Contract*.

Scope of Work described here.

4.5.3. *Exhibits Case Work Contracts*.

Scope of Work described here.

4.5.4. *Exhibits Relocation Contracts*.

Scope of Work described here.

4.5.5. *Signage Contract*.

Scope of Work described here.

BUILDING WIDE CONTRACTS RESPONSIBILITY MATRIX

A	Advise (Provide Information)
R	Indicates Responsibility for Task Accomplishment
C	Indicates Task Coordination is Required
I	Install
"Provide" means to furnish and install.	

GOVERNMENT	Other Government Contractors (OGC)	CONTRACTOR	Task
			ESCALATOR CONTRACT
A		R	Implement Program escalator design requirements
A		R	Remove existing escalators
A		C	Coordinate with Government to ensure timely ordering of escalators
A		IC	Schedule and coordinate installation of escalators by escalator contractor
			ELEVATOR CONTRACT
A		R	Implement Program elevator design requirements
A		R	Remove existing elevators per requirements
A		C	Coordinate with Government to ensure timely ordering of elevators
A		C	Schedule and coordinate installation of elevators by elevator contractor
			FLUSH VALVE/LOCK/MATERIAL CONTRACT
A		R	Implement Program flush valve/lock design requirements
A		C	Coordinate with Government to obtain system training
A		C	Coordinate with Government for timely release of orders
A		R	Install and test valves, locks, materials as necessary
			EXHIBITS CASE WORK CONTRACTS
A		R	Coordinate and implement Program requirements, e.g., power, lighting, security conduit associated with new casework.
A		C	Coordinate with Government and Case Work Contractor to ensure proper installation and operation of new casework.
			EXHIBITS RELOCATION CONTRACTS
A	R	C	Implement Exhibits Relocation design requirements
A	C	C	Coordinate with Government and Exhibits Relocation

4.6. Ancillary Contractors on Pentagon Reservation.

There are additional projects in progress or planned on the Pentagon Reservation. These projects include but are not limited to:

4.6.1. *Exterior Electrical Feeders*. As a separate contract, the Government will procure replacement of the main electrical feeders into the building along with related items, as follows:

- Scope of Work described here.

The Government intends for this project to be completed by December 2002, to allow move-in by Tenant G at the required level of electrical reliability.

4.6.2. *GPSR Tunnel Extension.* The scope for this project includes rerouting several primary electrical subfeeders, to remove them from the ductbank in front of the GPSR Tunnel. These final design details have not yet been determined, however it is noted on the Existing Conditions Drawings that investigation and coordination are required.

4.6.3. *Pentagon Physical Fitness and Readiness Facility (PPFRF)*. Connection to the primary electrical system needed.

4.6.4. *Upgrade Basement Electrical System*. Reconfigure existing basement vault F9B and some work in C8B. Anticipate completion December 2002.

4.6.5. *Demolition and Abatement of Basement 2A1*. See Section 6.3.

4.6.6. *Mission Critical Chilled Water.* Chilled water feeders from RDF to existing building façade to be completed by December 31, 2002.

4.6.7. *Other Basement Contracts*: See Section 6.0.

4.7. Food Service / Retail Vendors.

4.7.1. *Food Service / Retail Vendors*. The Government currently plans to award a number of Food Service / Retail Vendors contracts for food service and retail tenant fit out including required equipment to be added to the Core and Shell of the Pentagon. The Contractor will be responsible for designing and constructing the infrastructure of the Core and Shell to support the integration of the Government's Food Services and Retail Vendors in public food service and retail spaces as indicated in the Performance Matrix. Tenant fit out design and construction, equipment, built-in furniture for public food service and retail spaces will be provided by other government contractors. The Contractor shall coordinate with the Government and the food services contractors during the Tenant Fit Out design and construction phases. Executive food service areas shall be completely designed and built by the Contractor. This will include Core and Shell plumbing, electrical, HVAC, EMCS, lighting as indicated in the Performance Matrix, food service tenant fit out, built-in furniture and equipment.

FOOD SERVICE/RETAIL OGC RESPONSIBILITY MATRIX

A	Advise (Provide Information)
R	Indicates Responsibility for Task Accomplishment
C	Indicates Task Coordination is Required
"Provide" means to furnish and install.	

OGCs Defined	
F/R	Food/Retail
EMCS	Energy Management Control System
IM&T	Information Management & Technology

GOVERNMENT	Other Government Contractors (OGC)		CONTRACTOR	Task
	F/R	EMCS/IM&T		
A	C	C	R	Design Core & Shell for PUBLIC Food Service and Retail Spaces in accordance with Program Requirements.
C		C	R	Design Core & Shell and TFO for EXECUTIVE Food Service spaces.
C	C		R	Coordinate the Core & Shell design of PUBLIC Food Service and Retail Spaces with the appropriate tenant agencies, the responsible TFO designer OGC(s), and building management.
C			R	Coordinate the Core & Shell and TFO designs of EXECUTIVE Food Service spaces with the appropriate tenant agencies and building management.
A	C	C	R	Construct Core & Shell for PUBLIC Food Service and Retail Spaces and EXECUTIVE Food Service spaces to include all infrastructure support in accordance with Contractor and/or OGC TFO designs.
A	C		R	Produce Core & Shell As-Built documentation of PUBLIC Food Service and Retail spaces and pass to Food Service/Retail OGC(s) for TFO design.
A	R	C	C	Design Tenant Fit Out (TFO) for PUBLIC Food Service and Retail Spaces and coordinate with Core & Shell Designer. To include food service equipment and built-in furniture.
A		C	R	Construct Core & Shell for EXECUTIVE Food Service spaces to include all infrastructure support in accordance with the TFO design.
A	R	C	C	Construct TFO of PUBLIC Food Service and Retail spaces to include all equipment and built-in furniture.
A		C	R	Construct TFO of EXECUTIVE Food Service kitchen and seating spaces to include all plumbing, electrical, HVAC, EM&CS infrastructure, lighting, equipment and built-in furniture.
C	R	C	C	Punchout of PUBLIC Food Service and Retail spaces and testing of all equipment.
C		C	R	Punchout of EXECUTIVE Food Service spaces and testing of all equipment.

5.0. SECURITY REQUIREMENTS

Due to the security requirements and sensitive information contained in the original RFP, detailed information was deleted from this example.

5.1. General.

5.2. Exterior

Scope of work described here.

5.3. Interior.

Scope of work described here.

5.4. Security System.

Scope of work described here.

SECURITY RESPONSIBILITY MATRIX

A	Advise (Provide Information)
R	Indicates Responsibility for Task Accomplishment
C	Indicates Task Coordination is Required
P	Performs Task

OGCs Defined	
EMCS	Energy Management Control System Contractor(s)
IM&T	Information Management & Technology Contractor(s)
SEC	Security Contractor(s)

GOVERNMENT	Other Government Contractors (OGC)			CONTRACTOR	Task
	EMCS	IM&T	SEC		
A				R	Implement Program Security Design Requirements
C		C		R	Remove existing conductors, devices, equipment, security raceways, conduits, and j-boxes in accordance with the DCx plan and procedures.
C	C	C	C	R	Working in close coordination with the DPS Security Services Design Team, design the complete security system infrastructure including sizing of all security raceways and power requirements required to support all security devices and cameras in accordance with the program criteria and the tenant requirements.
C				R	During the Design Phase, coordinate all security requirements with the DPS Security Services Design Team.
P				R	Obtain Final Security Design Approval from the DPS Security Services Design Team.
A			C	R	Install all security raceways, conduit, junction boxes and power to devices and cameras.
C	C	C	R	C	DPS Security Services and Design Team to install all **DPS** security conductors, devices and cameras. Coordinate tie-ins and integration with EMCS and telecommunications backbone.
R	C	C	C	C	OGCs install all **Tenant** security conductors, devices and cameras. Coordinate tie-ins and integration with EMCS and telecommunications backbone.
C				R	Install GFE Mortise cylinders compatible with GF/GI ASSA removable core lock. Install temporary construction cores (use RED colored core keyed alike with operator key, provide core removal key to the OSD Locksmith shop).
R				C	DPS Security Services and Design Team to remove Contractor Cores and replace with permanent ASSA units. Return Contractor Cores and removal keys to Contractor.
C	C	C	R	C	**DPS** Security Commissioning and Training in accordance with Cx Plan.
R	C	C	C	C	**Tenant** Security Commissioning, Testing and Training.
A			C	R	Revise TFO DID Packages as needed

6.0. Basement

Due to the security requirements and sensitive information contained in the original RFP, detailed information was deleted from this example.

6.1. Introduction.

6.2. Segment 1.

Scope of Work described here.

6.3. Segment 2A1.

Scope of Work described here.

6.4. Segment 2A2.

Scope of Work described here.

6.5. Segment 3A.

Scope of Work described here.

6.6. Segment 3B.

Scope of Work described here.

7.0. TENANT INFORMATION

7.1. Construction Barrier.

7.1.1. *Objectives*. Construction will occur above or beside extremely sensitive, previously renovated, occupied space. The contractor shall provide and maintain a physical barrier between construction areas and occupied areas, including public spaces. The Contractor shall construct a barrier between occupied spaces and construction areas. The purpose is to buffer individuals, property, equipment and space from construction activities to the maximum extent possible and to prevent the intrusion of unauthorized personnel through the barrier. It is intended that the Contractor and the Government explore improvements and optimization of the tenant phasing and the construction barrier locations.

7.1.2. *Methods*. The objectives may be accomplished by various means, selected by the contractor. These may include construction of temporary fences where work occurs at the roof level or other exterior public areas and the installation of temporary walls, vestibules, window and roof coverings and floor drains to protect the interior of the building. Chain link security fencing may be used on the building exterior, including the roof, to segregate construction area from public space or other construction areas not included in this contract. Where construction is adjacent to or virtually surrounds occupied area the contractor shall maintain existing or provide temporary mechanical, electrical, plumbing, life safety, communications and security systems and code compliant egress to all occupied areas at all times.

7.1.3. *Special Considerations*. Historically, the primary concern has been water migration from construction area into occupied space. There is existing under floor duct and other electrical conduit that complicates this problem. Also, numerous complaints have been received that are related to noise and vibration, particularly where drilling, chipping and other similar tools have been used.

7.1.4. *Location*. The Contractor shall work with the government to optimize the location of barrier partitions and other temporary protective construction techniques. The Construction Barrier Concept Plan, following this section, reflects tenant needs as indicated in the Phasing Requirements of this Statement of Work.

7.1.5. *Security*. Additional security needs that involve barriers are outlined in Section 5.0, Security Requirements of this document. The contractor shall coordinate with and obtain final approval from the government for the location and arrangement of barrier walls and fences and related security measures.

7.1.6. *Performance Requirements*. To meet the considerations listed above, the barrier shall incorporate the minimum characteristics as listed in the Barrier Characteristics Table below

7.1.7. *Construction Barrier Concept Plan*. This diagram indicates general Construction Barrier Concept locations.

Barrier Characteristic Table	
Sound criteria	Provide STC 55 minimum for walls, additionally, construction operations producing noise levels greater than 80 dba within the occupied Pentagon shall be restricted to off-hour times, unless otherwise directed by the Contracting Officer. Off-hour times are generally considered to be non-workdays and 6:00 p.m. to 6:00 a.m. on normal workdays. Actual times shall be field coordinated with the Government.
Vibration resistance	Minimize transmission of construction vibration to occupied areas.
Water resistance	The barrier shall minimize water penetration into the interior construction area of the building and prevent water infiltration into occupied space from adjacent construction areas, on each floor and from floor to floor.
Fire resistive construction	Provide 2 hour minimum.
Dust and noxious fumes Migration	Prevent dust and noxious fumes generated by construction activities from migrating to the occupied Pentagon.
Thermal resistance	Insulate the occupied Pentagon from temperature and humidity fluctuations of the construction zone(s).
Egress	Provide and maintain code compliant means egress from the construction zone(s) and from the occupied Pentagon at all times.
Access	Provide access appropriate for daily usage to an office workplace, as access must be maintained at all times to the occupied Pentagon. This includes appropriate accessibility for persons with disabilities.
Security	Physical separation between the construction zone and the occupied Pentagon or other public areas is required. The occupied Pentagon shall not be accessible from the construction zones nor shall construction zones be accessible by the general public.

Construction Barrier Concept Plan

Drawing showing construction barrier locations for phased construction here.

7.2. Phasing Requirements.

Due to the security requirements and sensitive information contained in the original RFP, detailed information was deleted from this example.

7.2.1. Background Information

7.2.1.1. *Original Wedge Lines.*

- *Construction Phasing.*

7.2.2. *General Phasing Requirements*

7.2.2.1. *Overarching Requirements.*

7.2.2.2. *A-Ring Corridor Access.*

7.2.2.3. *Medical Emergencies.*

7.2.2.4. *Material Handling.*

7.2.2.5. *Executive Parking.*

7.2.2.6. *Area Threshold for Move-Ins.*

7.2.2.7. *Utility Phasing Requirement*s

7.2.3. Vacating Wedge 2+ for Construction

7.2.3.1. *Turn-Over.*

7.2.3.2. *Senior Executive Messes Phasing.*

7.2.4. Phase by Phase Tenant Transition Requirements

7.2.4.1. *Unlisted Agency Tenant Groups.*

7.2.4.2. *Specific Tenant Requirements.*

7.2.4.3. *Tenant Transition Plans.*

7.2.4.3.1. Tenant Transition Plan Phase 1.

7.2.4.3.2. Tenant Transition Plan Phase 2.

7.2.4.3.3. Tenant Transition Plan Phase 3.

7.2.4.3.4. Tenant Transition Plan Phase 4.

7.2.4.3.5. *Tenant* Transition Plan Phase 5.

7.2.4.3.6. Tenant Transition Plan Phase 6.

7.2.5. *Tenant Transition Plan Drawings*

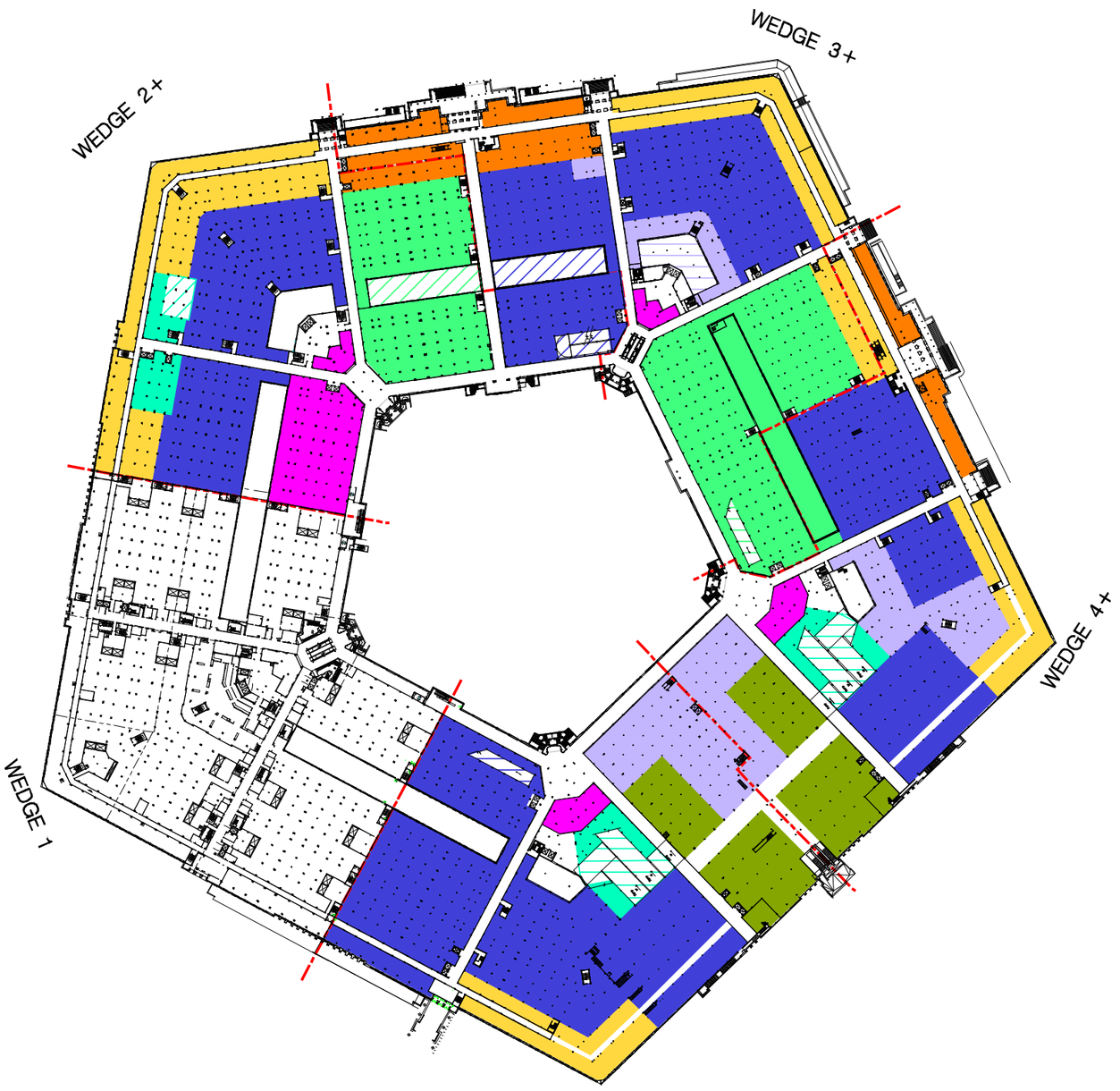
This section contains drawings that indicate General Phasing Requirements, requirements pertaining to the Vacating of Wedge 2+, and Phase-by-Phase Tenant Transition Plans. These are followed by drawings related to Executive Mess phasing requirements.

7.3. Space Zone Diagrams for Wedges 2, 3, 4, and 5.

These diagrams depict all occupiable space in the renovated Pentagon Wedges 2-5 by space type. The Space Zones indicated in these diagrams are further described in Section 7.5, Space Types Narrative Description and Section 7.4, Space Zone Occupiable Areas Threshold Table.

An example of one floor with generic space follows.

OFFICIAL USE ONLY



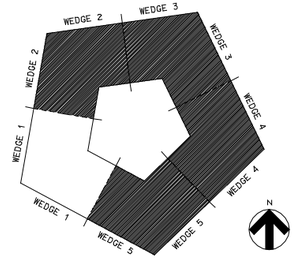
LEGEND

SPACE TYPES

- SPACE TYPES 1
- SPACE TYPES 2
- SPACE TYPES 3
- SPACE TYPES 4
- SPACE TYPES 5
- SPACE TYPES 6
- SPACE TYPES 7
- SPACE TYPES 8
- SPACE TYPES 9
- SPACE TYPES 10

REV	DATE	DESCRIPTION	BY

KEY PLAN



PENTAGON RENOVATION OFFICE
THE PENTAGON
ARLINGTON, VA

SPACE ZONES DIAGRAM FOR WEDGES 2, 3, 4, AND 5

SECOND FLOOR

7.4. Space Zone Occupiable Areas Threshold Table.

Space Types / Zones		Wedge 2+		Wedge 3+		Wedge 4+		Wedge 5		Wedge 2 - 5	
		Total Occupiable Area		Total Occupiable Area		Total Occupiable Area		Total Occupiable Area		Total Occupiable Area	
		Square Feet	Square Meters	Square Feet	Square Meters	Square Feet	Square Meters	Square Feet	Square Meters	Square Feet	Square Meters
ST-1	Space Type 1*	x,xxx	xxx	xx,xxx	x,xxx	xx,xxx	x,xxx	x	x	**xx,xxx**	**x,xxx**
ST-2	Space Type 2*	xxx,xxx	xx,xxx	xx,xxx	x,xxx	xx,xxx	x,xxx	xx,xxx	x,xxx	**xxx,xxx**	**xx,xxx**
ST-3	Space Type 3*	xxx,xxx	xx,xxx	xxx,xxx	xx,xxx	xxx,xxx	xx,xxx	xxx,xxx	xx,xxx	**x,xxx,xxx**	**xxx,xxx**
SP-4	Space Type 4*	xx,xxx	x,xxx	x	x	x	x	x	x	**xx,xxx**	**x,xxx**
Occupiable Totals		**xxx,xxx**	**xx,xxx**	**xxx,xxx**	**xx,xxx**	**xxx,xxx**	**xx,xxx**	**xxx,xxx**	**xx,xxx**	**x,xxx,xxx**	**xxx,xxx**
Non-Occupiable Totals		**xxx,xxx**	**xx,xxx**	**xxx,xxx**	**xx,xxx**	**xxx,xxx**	**xx,xxx**	**xxx,xxx**	**xx,xxx**	**x,xxx,xxx**	**xxx,xxx**
Renovated Inside Gross		**x,xxx,xxx**	**xx,xxx**	**x,xxx,xxx**	**xx,xxx**	**x,xxx,xxx**	**xx,xxx**	**x,xxx,xxx**	**xx,xxx**	**x,xxx,xxx**	**xxx,xxx**

* Actual Space type descriptions were used in the RFP

7.5. Space Types Narrative Description.

7.5.1. *Purpose*. The purpose of this document is to provide a narrative description of each major space type in the renovated Pentagon. It is anticipated that this information will be used to clarify the requirements provided in the Performance Criteria Matrices.

7.5.2. *References Used*.

7.5.3. *Area Definitions*.

7.5.3.1. *Internal Wedge Project Areas.* There are two types of areas internal to each Wedge project area. The first is Occupiable and the second is Building Infrastructure. The contractor is responsible for the renovation of all Occupiable and Building Infrastructure areas within each Wedge project area.

(a.) *Occupiable Area.* Occupiable area is space that is assigned to specific tenant groups and is space for which they pay rent. This space is measured from the inside face of the enclosing walls, except between adjacent occupiable spaces where the area of the demising partitions is equally shared. These spaces include Office Suites, Special Spaces and Storage Spaces as noted below in paragraph 3.0 and are reflected in the space zone drawings.

(b.) *Building Infrastructure Area*. Building Infrastructure is space other than occupiable space that is included in the building gross area. This category includes mechanical and electrical spaces, exterior walls, and telecommunications spaces. These areas are not reflected in the space zone drawings. Their location is at the discretion of the Contractor in accordance with the requirements documented elsewhere in this SOW.

7.5.3.2. *External Wedge Project Areas.* There are two areas external (directly above and directly below) each Wedge Project Area in which the Contractor has renovation related tasks. The first is Basement Area and the second is Roof Area. The contractor shall perform work in both of these external areas as described below:

(a.) Basement Area.
1. *Areas described*.

7.5.4. *Occupiable Area Space Types*.

7.5.4.1. *Office Suites*. The Contractor shall design and implement a Universal Space Plan that will adapt to changing tenant office requirements without extensive reconfiguration of the mechanical, electrical, lighting, ceiling, plumbing, or life safety systems or components. Diagrams which illustrate this concept are available from the Contracting Officer. The Contractor shall work with the Government to improve and optimize this concept.

(a.) ST –1 Space Type 1. Private offices and their support areas for senior staff. Average suite size is 232.25 SM. This space type is intended to house individuals and their support of P-1 status. Tenant Guidelines (see references) include description of P-1.

(b.) ST –2 Space Type 2

7.5.4.2. Special Spaces

(a.) ST –3 Space Type 3 Special space

(b.) ST –4 Space Type 4 Extra special space

7.5.5. *Building Infrastructure Space Types*

Various spaces types defined here.

7.6. Executive and Secretarial Spaces - Upgrade Finish Package Options.

As part of the basic requirement, the Contractor shall preserve the two existing, open Ceremonial Stairs adjacent to the Mall and River Terraces as indicated the Concept Plans. The Contractor shall bring the stairs into full code compliance while preserving the existing open character and finishes to the greatest extent possible. Where modifications of existing finishes are required to comply with codes such as the remediation of hazardous materials, the installation of compliant handrails or the like, the Contractor shall match adjacent existing materials, finishes and configurations.
The government intends to offer each tenant agency upgrade finish packages that will provide a modest but distinguishing appearance for the executive offices, corridors and other related spaces of each agency.
When directed by the Contracting Officer (see H-13 "Exercise of Options"), the Contractor shall design and construct the finish upgrade packages for the space types listed below. Option packages shall include some combination of upgrade floor finish, base, wall covering, wall trim, doors, door hardware and finish, ceiling treatments and lighting devices.

Zone/Type	Space Name	Total Area*
ST-1	Space Type 1	100%
ST-2	Space Type 2	8.5%

* *Calculate % from threshold table.*

7.6.1. *Executive Upgrade Matrix.* This section contains the Executive Upgrade Matrix indicating upgrade finishes by space type.

EXECUTIVE UPGRADE MATRIX

	Walls												Stairs		Doors				Door Frame			Hardware		Window Treatment			Flooring								Wall Base					Ceiling			Lighting	
	Paint - (Ivory)	Paint Accent	Wallcovering Vinyl	Wallcovering - Polyolefin	Wood Crown Mldg., Stained	Wood Crown Mldg., Painted	Wood Paneling, Stained	Wood Paneling, Painted	Wainscot, Stained	Wainscot, Painted	Wood Chair Rail, Stained	Wood Chair Rail, Painted	Steel painted	Existing Hard Surface to Remain	SC Stain Grd., Paneled Both Sides	SC Paint Grd., Paneled Both Sides	SC Paint Grade	HC Paint Grade	Hollow Metal Frame	Wood Frame, Painted	Wood Frame, Stained	Standard Bronze	Brass	Blinds note 5	Draperies and Sheers	Black-out Drapes	Carpet Tile Patterned, Loop	Carpet Tile Solid, Cut Pile	Carpet Broadloom, Cut Pile (Floor Type 1)	Vinyl Composition Tile	Terrazzo (Floor Type 3)	Wood	Wood Painted, 6"	Wood Stained 6"	Vinyl - 4" h. Cove	Vinyl - 4" h. Straight	Terrazzo	Ceiling (Type 1)	Ceiling (Type 2)	Plaster/Drywall	Lighting fixture (Type 1)	Downlighting/ Wallwash
EXECUTIVE CORRIDOR																																											
Option A Tenant Funded																				✱			✱																				
Option B Tenant Funded											✱				✱						✱		✱																				
CEREMONIAL CORRIDORS AND STAIRWELLS																																											
See Notes Below							✱[1]							✱																	✱[4]									✱[2]		
P1 EXECUTIVE OFFICE/CONF. RM																																											
Option A Tenant Funded																				✱			✱						✱										✱			
Option B Tenant Funded											✱				✱						✱		✱						✱					✱					✱			
P1 EXECUTIVE SUITE																																											
Option A Tenant Funded												✱								✱			✱																✱			✱
Option B Tenant Funded											✱				✱						✱		✱											✱					✱			✱
P2 & P3 OFFICE/CONFERENCE/SUITE																																											
Option A Tenant Funded	✱	✱										✱				✱				✱			✱										✱					✱[3]			✱
Option B Tenant Funded											✱				✱						✱		✱											✱					✱[3]			✱
EXECUTIVE DINING																																											
Option A Tenant Funded	✱	✱										✱				✱				✱			✱																✱			

Note 1: Retain existing wood paneling, railing and trim in ceremonial stair.
Note 2: Retain or replace, as required, ornamental plaster ceiling in ceremonial stair after abatement activities.
Note 3: Recessed reveal only available in P2 or P3 within suite.
Note 4: New floor finish in ceremonial stair landing to match executive corridor. Retain existing intermediate landing floor finish.

7.7. Exhibits Casework Design.

Some of the existing corridor areas have exhibits in casework that are tenant agency specific that will be removed and relocated near to their respective agencies in the renovated corridors. Exhibits are currently located in existing corridors 6,7,8 and 9 and the E and A-ring corridors on floors 2,3, and 4 ; between corridors 6-7 and 8-9 and corridor 6 ½ that leads to the Hall of Heroes on the second floor. There are other areas referred to in the Tenant Guidelines that contain non-tenant specific exhibit items that will also be relocated. Potential new locations are the new A and E rings. It is expected that casework will be located on one side of each new A and E Ring Corridor at approximately 12 meter intervals. Casework along A-Ring shall be located between the existing windows along the window wall only.

The Government intends to offer to tenant agencies a complete package of new casework (for displays). The design for this casework requires integration into other millwork (wood base, wood chair rail, etc.) being designed for the public corridors of the renovated Pentagon. Pentagon tenants will select from this package of display casework designs, the display casework that best suits their individual requirements. It is required that the Contractor design the casework package such that individual units that can be added, relocated, or removed at the tenant agency's direction without damage to the surrounding surfaces (floor, ceiling, millwork trim, adjacent walls). Each casework design is to meet all ADA requirements. In addition, each display unit will require the integration of lighting and security. Display types that need to be accommodated are as follows:

Full height vignette displays	(1524 mm x 1829 mm deep)
Full height shallow displays	(305 mm deep)
Full height deep displays	(610 mm deep)
Partial height shallow displays	(305 mm deep)
Partial height deep displays	(610 mm deep)
Casework width	(1219 mm module)

Finish options for casework shall match the proposed options for millwork in the public corridors (wood species, stain finish, paint finish, etc).

As a contract requirement, this Casework Design shall be provided by the Design Build Contractor; manufactured and installed by other government contractors (OGC). Other Government Contractors will remove, store and reinstall all exhibits and provide new casework under separate contract. The Design Build Contractor shall coordinate with the Other Government Contractor and incorporate into its schedule all activities related to exhibit casework. The Contractor shall provide lighting and power circuits to junction boxes (one each at 6 meter intervals) and conduit and junction boxes for security systems at each of the designated locations.

7.8. Universal Space and Design Flexibility.

7.8.1. The Contractor shall implement a Universal Space Plan concept for the design of all appropriate areas that could be affected by future and frequent changes. The plan shall provide for a universal infrastructure system for space to accommodate the widest range of typical tenant and building requirements and to minimize the time between tenant design and tenant move-in. The plan shall be implemented during construction so as to allow flexibility in post-renovation reconfiguration of the space with minimal cost and impact to tenant activities or infrastructure including electrical power, lighting,

mechanical, plumbing, flooring, ceiling and life safety systems or components. The Contractor shall collaborate with the Government to optimize and implement the submitted Universal Space Plan concept on a continual basis throughout the entire project. Universal Space Plan concepts shall be incorporated into the design of the Core and Shell. The resulting constructed space shall not exceed the Universal Plan Percent Change Maximums for the infrastructure and schedule impact as below.

Universal Plan Percent Change Maximums	
Trunk ductwork	<4%
Sprinkler distribution	<10%
Secondary electrical distribution	<8%
Return air system components	<4%
Supply air Distribution	<8%
Overhead Lighting	<10%
Ceiling System	<10%

8.0. Performance Criteria

Performance criteria are included on spreadsheets for each of the following systems: architectural; electrical/lighting; mechanical; plumbing/fire protection, security; and telecommunication. The Master Criteria spreadsheet (Performance Criteria-Master) identifies required attributes for each of the systems and is to be used in conjunction with all the system-specific performance criteria spreadsheets. Each system also has a system-specific definitions page (Performance Criteria-Definitions). These pages define the attributes selected on the Master for that particular system.

The performance criteria spreadsheets are formatted as follows: The lower right hand footer identifies the specific system. The number following the system identifies the sequence of pages; there are two pages per system. The space types, as defined in the Tenant Information section, are shown horizontally across the top. Located directly under a particular space type will be the performance values to be used when designing the space type. The left most vertical column of the system-specific matrices identify performance value categories representative of that system.

When designing a specific space type, the Contractor shall refer to the system-specific criteria spreadsheet for values and then cross-reference the Master spreadsheet to locate the desired criteria attributes, which are assigned a value or highlighted by an "X". On the Master locate the system or item and follow the column down until there is an "X", move horizontally to the left to view respective attribute. The attribute has been selected as unique to the system or item and is defined on the system-specific Definitions page. All attributes on the Master highlighted with an "X" have a respective definition.

Definitions are divided into two categories – criteria definitions and criteria standards. Criteria definitions describe design parameters for the designer to apply in developing solutions for the building design. Criteria standards supply specific industry standards for particular components of the work.

Notes are located at the bottom of each spreadsheet. There are general notes that correspond to the whole page, and notes that correspond to a specific space type or value (noted in the matrix or in the specific note).

8.1. Electrical Utility System.

8.1.1. General Requirements:

The system configuration shown in the concept plans meets the Government's operational and reliability requirements for the facility and tenant agencies. Alternate proposals by the Contractor must demonstrate equal or better performance and calculated reliability.

8.1.1.1. The general electrical distribution system shall be of utility-grade design and construction.

8.1.1.2. The Basis of Design, noted in Section 2.4, shall include:

- Overall configuration and physical layout of the entire primary distribution system required for W2-5 to assure that the final configuration meets program requirements.
- Rationale for design supported by documented, referenced, and back-checked calculations as well as system studies.
- Description of provisions for unanticipated conditions such as physical protection from environmental extremes and ready addition of future status monitoring, equipment, circuits, and testing capability.

8.1.1.3. The Contractor shall field-verify and document the condition of existing manholes and ductbanks planned for reuse prior to finalizing the electrical distribution system design.

8.2. Mission Critical Performance Criteria.

8.2.1. General Requirements:

- Scope of work described here.

8.2.2. Mechanical System Requirements:

- Failure, isolation, bypassing, preventive maintenance, diagnostics, repair, removal, replacement, modification, and testing of any single component shall not interrupt service to a tenant or otherwise require reduction of tenant load.
- Mission critical items shall be isolated from airborne and biological contaminants, combustible materials, high humidity, pest infestation, and other corrosion producing activities.

8.2.3. Electrical System Requirements:

- The mission critical electrical distribution system shall be of utility-grade design and construction through the 120/208-volt level. However, drawout construction is not required for 120/208-volt distribution equipment.
- Failure, isolation, bypassing, preventive maintenance, diagnostics, repair, removal, replacement, modification, and testing of any single component shall not interrupt service to a tenant or require reduction of tenant load.

16 Pages of Performance Criteria follows

1. **Master**
2. **Architectural – 1**
3. **Architectural – 2**
4. **Architectural Definitions**
5. **Electrical & Lighting – 1**
6. **Electrical & Lighting – 2**
7. **Electrical & Lighting Definitions**
8. **Mechanical – 1**
9. **Mechanical – 2**
10. **Mechanical Definitions**
11. **Plumbing & Fire Protection – 1**
12. **Plumbing & Fire Protection – 2**
13. **Plumbing & Fire Protection Definitions**
14. **Security & Telecommunication – 1**
15. **Security & Telecommunication – 2**
16. **Security & Telecommunication Definitions**

An example of how the matrices work is provided.

Due to the security requirements and sensitive information contained in the original RFP, detailed information was deleted from this example.

Final Sec 8 Attachment.ppt

PERFORMANCE CRITERIA

Performance Criteria – Master (1 of 16)

CRITERIA ATTRIBUTES	AREAS	CEILINGS				WALLS										
						Interior							Exterior			
	TYPE	1	2	3	4	1	2	3	4	5	6	7	1	2	1	2A
ACCESSIBILITY		x	x													
ACOUSTICS / SOUND TRANSMISSION		NRC .55	NRC .65	NRC .45		STC 45	STC 45	STC 50	STC 45	STC 35	STC 55	STC 45				
DURABILITY		x	x	x		x	x	x	x	x	x	CMU	x	x	x	x
ENERGY EFFICIENT													x	x		
EXISTING-EQUAL APPEARANCE													x	x		
FLEXIBILITY		x	x				x	x	x	x						
GLARE CONTROL																
LIFE CYCLE		x	x	x		x	x	x	x	x	x	x	x	x	x	x
LIGHT REFLECTIVITY		LR 0.80	LR 0.83	LR 0.78	LR 0.78	LR 0.75	LR 0.75	LR 0.75	LR 0.75	LR 0.75	LR 0.75					
MAINTAINABILITY		x	x	x		x	x	x	x	x	x	x			x	x
NON-OPERABLE																
REDUNDANCY																
REPLACEABILITY		x	x													x
SECURITY				x		x	x	x	x		x	x	x	x		
SERVICEABILITY															x	
STANDARDIZATION / COMPATIBILITY		x	x	x											x	x
STATIC DISSIPATIVE																

PERFORMANCE CRITERIA

Performance Criteria – Master (1 of 16)

CRITERIA ATTRIBUTES
ACCESSIBILITY
ACOUSTICS / SOUND TRANSMISSION
DURABILITY
ENERGY EFFICIENT
EXISTING-EQUAL APPEARANCE
FLEXIBILITY
GLARE CONTROL
LIFE CYCLE
LIGHT REFLECTIVITY

The left column displays required attributes for each of the disciplines (i.e.Architectural, Mechanical, etc) and is used to be in conjunction with all the discipline specific performance criteria matrices.

PERFORMANCE CRITERIA

Performance Criteria – Master (1 of 16)

Each Attribute that is checked off in the matrix corresponds to a specific area/discipline.

CRITERIA ATTRIBUTES	AREAS	CEILINGS				WALLS									
						Interior							Exterior		
	TYPE	1	2	3	4	1	2	3	4	5	6	7	1	2	1

PERFORMANCE CRITERIA
Performance Criteria – Master (1 of 16)

Each attribute that is checked has a specific definition found on the corresponding area/discipline definition page (i.e. Architectural Definition page)

ARCHITECTURAL FEATURE	***ARCHITECTURAL PERFORMANCE REQUIREMENT DEFINITIONS***
DOORS	Interior doors shall pass ANSI A151.1, cycle 4070, minimum level A performance, or equivalent. Door frames shal million swing cycle. Prep Type 2 doors for security which is to be furnished and installed by O.G.C. Type 1&3 doo Door hardware shall be commercial grade, ANSI A156, Grade 1 operational, Grade 3 security for typical applicatic and public corridor doors. Reference "Design and Construction Security Standards and Criteria" dated Novembe

PERFORMANCE CRITERIA

Performance Criteria – Master (1 of 16)

CRITERIA ATTRIBUTES	AREAS	CEILINGS				WALLS									
						Interior							Exterior		
	TYPE	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*1*	*2*	*1*

The “TYPE” row number identifies the specific item/system that correlates to the attributes found out under that “TYPE” number column.

PERFORMANCE CRITERIA

Performance Criteria – Architectural (2 of 16)

CRITERIA	ST-1 Space Type 1
CEILINGS	
Type 1	
Type 2	X
Type 3	
Type 4	
WALLS	
Type 1	X
Type 2	
Type 3	

The Space Types (ST) are identified horizontally across the top of the criteria matrix.

PERFORMANCE CRITERIA

Performance Criteria – Architectural (2 of 16)

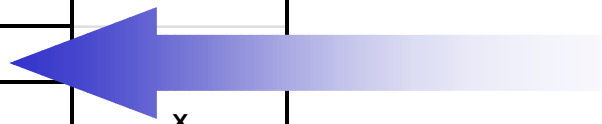
CRITERIA	ST-1 Space Type 1
CEILINGS	
Type 1	
Type 2	X
Type 3	
Type 4	
WALLS	
Type 1	X
Type 2	
Type 3	

Located directly under the “Space Type” is the performance value/system that is to be used when designing it.

PERFORMANCE CRITERIA

Performance Criteria – Architectural (2 of 16)

CRITERIA	ST-1 Space Type 1
CEILINGS	
Type 1	
Type 2	X
Type 3	
Type 4	
WALLS	
Type 1	X
Type 2	
Type 3	
Type 4	
Type 5	X
Type 6	
Type 7	
FLOORS	
Type 1	X



The left most vertical column of the discipline specific matrices, identify performance value categories representative of that discipline.

PERFORMANCE CRITERIA

Performance Criteria – Architectural (2 of 16)

When designing a specific "Space Type" refer to the discipline specific spreadsheet values.

PERFORMANCE CRITERIA

Performance Criteria – Architectural (2 of 16)

CRITERIA			General Offices			Food S
	ST-1 Space Type 1	ST-2 Space Type 2	ST-3 Space Type 3	ST-4 Space Type 4	ST-5 Space Type 5	ST-6 Space Type 6
CEILINGS				None		
Type 1		X	X		X	X
Type 2	X					
Type 3						
Type 4						
WALLS				None		
Type 1	X					
Type 2		X				
Type 3			X			X
Type 4					X	
Type 5	X	X	X			
Type 6						
Type 7						
FLOORS				None		

PERFORMANCE CRITERIA

Performance Criteria – Master (1 of 16)

Then cross-references to the Performance Criteria - Master matrix to locate the desired criteria attributes, which are assigned a value or highlighted by an **X.** If there is an **X** than the attribute has been selected as unique to the discipline/item and is defined on the discipline specific definitions page (i.e. Performance Criteria - Architectural Definitions).

ALL ATTRIBUTES HIGHLIGHTED WITH AN **X** ON THE MASTER HAVE A RESPECTIVE DEFINITION.

PERFORMANCE CRITERIA

Performance Criteria – Master (1 of 16)

CRITERIA ATTRIBUTES	AREAS	CEILINGS				
	TYPE	*1*	*2*	*3*	*4*	*1*
ACCESSIBILITY		X	X			
ACOUSTICS / SOUND TRANSMISSION		NRC .55	NRC .65	NRC .45		STC 45
DURABILITY		X	X	X		X
ENERGY EFFICIENT						
EXISTING-EQUAL APPEARANCE						
FLEXIBILITY		X	X			

PERFORMANCE CRITERIA

Performance Criteria – Architectural (2 of 16)

CRITERIA	*ARCHITECTURAL PERFORMANCE*
ACCESSIBILITY	Pertains to how obstruction-free a component, subassembly, equipment or system is for being eas authorized person for inspection, diagnostics, repair, adjustment, removal, replacement, testing, ne description also applies to the physical spaces housing the components, subassemblies, or syster is bei le to safely reach a component or subassembly for the previously described purposes w wit e need for special devices other than a six-foot ladder.
ACOUSTICS/ SOUND TRANSMISSIO	ains to the sound absorption capability of a wall, partition, or panel judged by industry accepte ound Transmission Class as measured by ASTM E 90), NRC (Noise Reduction Coefficient as n
DURABILITY	Pertains to how well a component, subassembly, equipment item, and their associated physical sp the Government over their various expected service lives when applied, installed, operated, mainta intended by their respective manufacturers and builders. Greater durability means lower material v longer service lives.
ENERGY EFFICIENT	With respect to architectural systems, pertains to industry-accepted practice for each system/produ values, light transmittance and so forth. The A & E ring windows have a U value of 1.6 W/(Sq.M-°C etc.) shall be determined by the Design Build contractor and must comply with ASHRAE Standard

ATTACHMENT 2

AWARD FEE PLAN

FOR

DESIGN/BUILD OF THE PENTAGON

WEDGES 2 - 5

Public Release Version

COORDINATED:

_____
Contracting Officer

_____
Award Fee Evaluation Board Chairperson

APPROVED:

_____
Award Fee Determining Official
Pentagon Renovation Program Manager

Introduction

1. This plan covers the administration of the award fee provisions of Contract No. MDA947-01-C-2001, which was awarded in accordance with the provisions of Solicitation Number MDA947-00-R-0007.

2. The purpose of the award fee plan and provisions of this contract are to incentivize superior performance on behalf of the contractor based on the goals of the contract, and to reward the contractor for achieving superior performance and successfully completing contract performance requirements. As prescribed in Section H, clause H-3, the Contractor's performance will be continually monitored by the performance monitors whose findings are reported to the Award Fee Evaluation Board (AFEB). The AFEB recommends an award fee to the Award Fee Determination Official (AFDO) who makes the final decision of the award fee amount paid based on the Contractor's performance during the award fee evaluation period.

3. In addition to the award fee provisions covered by Section H of the contract, the following matters, among others, are covered in this plan:

a. The Award Fee Organization is described in Part II of this plan.

b. The award fee earned will be determined periodically by the AFDO in accordance with this plan. The award fee evaluation periods are as set forth in Part III of this plan.

c. The award fee amount allocated to each evaluation period shall be determined as described in Part IV of this plan.

d. The award fee performance factors and respective evaluation criteria are described in Part V to this plan.

e. The award fee ratings and respective percentile scores are described in Part VI of this plan.

f. The method for evaluating the contractor and determining the award fee amount earned for each period is described in Part VII of this plan.

g. The steps and method for changing this award fee plan are provided in Part VIII of this plan.

II. Organizational Structure for Award Fee Administration and Responsibilities

The following organizational structure is established for administering the award fee provisions of the contract.

1. Award Fee Determination Official (AFDO).

The AFDO is the Pentagon Renovation Program Manager. Primary AFDO responsibilities are:

a. Appointing the AFEB Chairperson.

b. Meeting with the representatives of the AFEB and receiving AFEB reports prior to award fee determinations.

c. Determining the award fee earned and payable for each evaluation period and forwarding this determination to the Contracting Officer for action.

d. Forwarding approved changes to this plan to the Contracting Officer for action as addressed in Part VIII.

2. Award Fee Evaluation Board (AFEB).

As appointed by the AFDO, the AFEB Chairperson is the Wedges 2-5 Integrated Product Team Leader. As appointed by this AFEB Chairperson, the following are voting members of the AFEB: Federal Facilities Division (FFD) Representative, the Planning and Stakeholders Activities Group (PSAG) Leader, the Operations Group Leader, the Safety Officer, and the Contracting Officer. The Chairperson may appoint non-voting members to assist the AFEB in performing its functions. Primary responsibilities of the AFEB are:

a. Assigning Performance Monitors to each evaluation factor in writing using Attachment III to this plan as an example.

b. Conducting periodic evaluations of contractor performance and presenting the Award Fee Evaluation Board Report (AFEBR) to the AFDO covering the Board's findings and recommendations for each evaluation period.

c. Considering changes in this plan and recommending those it determines appropriate for approval by the AFDO, as addressed in Part VIII.

3. Performance Monitors.

At least one monitor will be assigned to each performance factor or subfactor to be evaluated. The monitors will be responsible for reporting and making recommendations to the AFEB for their assigned factor or subfactor. As stated above, the AFEB Chairperson will make the assignments in writing. Primary monitor responsibilities are:

a. Monitoring and Assessing Performance:

1) Monitors will plan and carry out on-site assessment visits, as necessary.

2) Monitors will conduct all assessments in an open, objective and cooperative spirit so that a fair and accurate evaluation is obtained. This will ensure that the Contractor receives accurate and complete information from which to plan improvements in performance. Positive performance accomplishments should be emphasized just as readily as negative ones.

3) The monitor will discuss the assessment with Contractor personnel as appropriate, noting any observed accomplishments and/or deficiencies. This affords the Contractor an opportunity to clarify possible misunderstandings regarding areas of poor performance and to correct or resolve deficiencies.

4) Monitors must remember that contacts and visits with contractor personnel are to be accomplished within the context of official contractual relationships. Monitors will avoid any activity or association that might cause, or give the appearance of, a conflict of interest.

5) Monitor discussions with contractor personnel are not to be used as an attempt to instruct, to direct, to supervise or to control these personnel in the performance of the contract. The role of the monitor is to monitor, assess, and evaluate, not to manage the Contractor's effort.

c. Evaluation/Assessment Reports: Monitors will submit the Award Fee Evaluation Worksheets and Evaluation and Assessment Records, Attachments I and II to this plan, to the AFEB Chairperson monthly.

d. Verbal Reports: Monitors will be prepared to make verbal reports of their evaluations and assessments as required by the AFEB Chairperson. Additionally, monitors may be required to present their findings at the Award Fee Evaluation Presentations to the AFDO.

I. III. Evaluation Periods

The award fee evaluation periods for this contract are as set forth in the table below for Wedge 2 of the contract. It is recognized that the following table contemplates a three-year period for completing Wedge 2 followed by a one-year post-construction/warranty period. The expected evaluation factors for each period and their relative order of importance are also indicated below. The Contractor will be notified 15 days prior to the beginning of an evaluation period if the factors or order of importance will change. The Government reserves the right to revise the evaluation period schedule as well as the factors to be considered in each period, upon contract award, as appropriate based on the Contractor’s proposed schedule. The award fee evaluation periods for Wedges 3 – 5 shall occur on a quarterly basis (every three months) beginning with the option exercise date for each wedge. The specific schedule of evaluation periods for each wedge shall be included in the option exercise modification.

Wedge 2 Evaluation Period Schedule

Period	Dates of Period Coverage	Expected Presentation Date to AFDO	Evaluation Factors Considered and Order of Importance
W2–1	Award – 30 Sep 2001	15 Oct 2001	1>2
W2–2	01 Oct 2001 – 31 Dec 2001	14 Jan 2002	1>2>3
W2–3	01 Jan 2002 – 31 Mar 2002	15 Apr 2002	1>2>3
W2–4	01 Apr 2002 – 30 Jun 2002	15 Jul 2002	1>2>3
W2–5	01 Jul 2002 – 30 Sep 2002	15 Oct 2002	1>2>3
W2–6	01 Oct 2002 – 31 Dec 2002	14 Jan 2003	1>2>3
W2–7	01 Jan 2003 – 31 Mar 2003	15 Apr 2003	1>2>3
W2–8	01 Apr 2003 – 30 Jun 2003	15 Jul 2003	1>2>3
W2–9	01 Jul 2003 – 30 Sep 2003	15 Oct 2003	1>2>3
W2–10	01 Oct 2003 – 31 Dec 2003	14 Jan 2004	1>2=4
W2–11	01 Jan 2004 – 31 Mar 2004	15 Apr 2004	1>2=4
W2–12	01 Apr 2004 – 30 Jun 2004	15 Jul 2004	1>2=4
W2–13	01 Jul 2004 – 30 Sep 2004	15 Oct 2004	5
W2–14	01 Oct 2004 – 31 Dec 2004	14 Jan 2005	5
W2–15	01 Jan 2005 – 31 Mar 2005	15 Apr 2005	5
W2–16	01 Apr 2004 – 30 Jun 2005	15 Jul 2005	5

IV. Maximum Available Award Fee for Each Period

As stated in the contract, the maximum available award fee shall be 10% of the contract value. The maximum award fee available under this contract for each Wedge will be stated in Section B of the contract. All additional award fees available and generated from contract modifications will be added to or subtracted from the contract and Section B will be revised accordingly.

The maximum available award fee pool shall be allocated to each evaluation period based on the Contractor's approved progress payments. The award fee pool for periods 1 through 12 shall represent 9.5% of the progress payments made during each evaluation. The remaining 0.5% will be withheld from the award fee pool and will be distributed in equal amounts to periods 13 through 16.

The award fee allocation schedules for Wedges 3 – 5 shall be similarly established and stated in each option exercise modification.

It is expected that the last evaluation periods for Wedge 2 will overlap and coincide with approximately the first four evaluation periods for Wedge 3. Additionally, it is expected that such overlap will also occur with the subsequent Wedges. It is recognized that the following table contemplates a three-year period for completing Wedge 2 followed by a one-year post-construction/warranty period. The Government reserves the right to revise the evaluation period schedule and the factors to be considered in each period, as appropriate, based on the Contractor's proposed schedule.

V. Evaluation Factors and Criteria

The Contractor's performance shall be evaluated against the following award fee evaluation factors and criteria. The order or importance for each criteria during each period is as stated under Part III above.

1. Factor 1 – Design and Construction Performance. The following subfactors, which are of equal importance to each other and their respective performance criteria will be considered:

a. Quality of Work – the following criteria apply:

- effectiveness of contractor, consultant and subcontractor Quality Control programs
- conduct and coordination of Contractor Quality Control inspections
- responsiveness to Government concerns regarding quality issues
- overall quality of work performed
- safety performance and management commitment to safety requirements
- management commitment to security requirements
- management commitment to energy sustainable design

b. Change Management and Cost Control – the following criteria apply:

- early identification and resolution of design and/or construction problems, avoiding modifications
- timely submission and equitable pricing of requested proposals for changed work, when necessary
- efforts and success in mitigating costs for changed conditions
- effectiveness in management of consultant and subcontractor proposals
- minimization and timely resolution of claims or requests for equitable adjustment
- effectiveness in management of the Request for Information process – minimization of frivolous submissions; adequacy of contract document review prior to submission of clarification requests; proposal of recommended solutions
- effectiveness in phasing the work for most efficient use of work crews and resources
- effectiveness of universal space design in minimizing core and shell cost impacts due to tenant changes

c. Resource Management – the following criteria apply:

- effectiveness of coordination and cooperation with other Government contractors
- acquisition, retention, and effective use of resources, including subcontractors
- effectiveness of integrated design and construction resources
- effectiveness of key personnel

d. Project and Program Controls/Government Insight – the following criteria apply:

- establishment of effective project and program controls, including metrics
- effectiveness in reducing variances from planned events
- processes established to appropriately involve the Government in design and management decision making process
- timely notification of design changes
- keeping the Government apprised of current cost and schedule status
- management effectiveness in maintaining approved schedule
- efforts and success in achieving early completion of milestones
- effectiveness of communication with Government representatives
- effectiveness in coordinating with other Government contractors

e. Customer Relations – the following criteria apply:

- cooperation and proactive involvement in problem mitigation/solving
- timely response to Government requests
- continuing efforts to maximize efficiencies and contract budget

2. Factor 2 – System Commissioning. The following criteria will be considered:

- effectiveness in coordination and execution of, and adherence to commissioning plan through all phases of the project
- timeliness, quality and thoroughness of SOMMS, O&M manuals and training
- timeliness and quality (includes accuracy and format) of monthly as-built drawings updates and other submittals required by the commissioning process

3. Factor 3 – Socioeconomic Programs Compliance. The following criteria will be considered:

- Contractor's good faith efforts and success rate in meeting and exceeding the subcontracting goals included in the approved subcontracting plan.

  - The Contractor may earn award fee even if the goals are not met, provided that a positive program of socioeconomic program compliance is accomplished in good faith
- timely compliance with contractual reporting requirements
- timely and accurate submission of semi-annual reporting documentation
- efforts and results in transfer of QC/QA technology to small, small disadvantaged and women owned small businesses
- outreach efforts to attract qualified small, small disadvantaged or women owned subcontractors to the project
- mentoring activities for small, small disadvantaged, or women owned subcontractors working on the project

4. Factor 4 – Project Closeout**.** The following criteria will be considered:

- compliance with turnover policies and procedures
- effective scheduling and management of turnover actions
- minimization and timely resolution of punch list items

5. Factor 5 – Post-Construction/Warranty. The following criteria will be considered:

- timely response to warranty calls
- quality of repairs
- effectiveness of communication with Government representatives
- cooperation and proactive involvement in problem mitigation/solving
- effectiveness in coordination and execution of seasonal and other deferred functional performance testing
- effectiveness of the measurement and verification system and timeliness and accuracy of reports
- success rate in meeting the energy performance requirements of the contract and the systems as designed or in achieving better energy performance than required.

VI. Grading and Scoring

The AFDO shall use the following adjective ratings to determine the level of the Contractor's performance for each period. Based on these ratings, the AFDO shall also determine the percent of award fee the Contractor should earn as a result of its performance. Award fee shall not be earned for poor or inadequate performance as indicated in the table below.

Grading and Scoring Table

{PRIVATE} Adjectival Rating and % Range of Award Fee Earned	**Description**
Excellent 85% - 100 %	Contractor's performance of task requirements is uniformly well above the standards and threshold set forth in the contract. Self-initiated, innovative management actions have resulted in tangible benefits to the Government in the form of improved quality, reduced costs, increased timeliness, or generally enhanced responsiveness to Government requirements or needs.
Very Good 75% - 84%	Contractor's performance of most task requirements is above the standards and thresholds set forth in the contract. Innovative management actions have resulted in some tangible benefits to the Government in the form of improved quality, reduced costs, increased timeliness, or generally enhanced responsiveness to Government requirements.
Good 60% – 74%	Contractor's performance of some task requirements is above the standards and thresholds set forth in the contract, while the remainder of the Contractor's effort meets contract requirements. Management actions taken or initiated have resulted in demonstrated benefits to the Government in the form of improved quality, reduced costs, increased timeliness, or generally enhanced responsiveness to Government requirements.
Poor – Inadequate 0%	Contractor's performance barely meets or does not meet the contract requirements. Management actions taken or initiated have not resulted in improved quality, reduced costs, increased timeliness, or generally enhanced responsiveness to Government requirements. Inadequate Contractor performance may result in adverse contract actions.

VII. Method For Determining Award Fee

A determination of the award fee earned for each evaluation period will be made by the AFDO, and authorization by the Contracting Officer to allow for payment of the award fee earned within 30 days after the end of the period. The AFDO will make an overall award fee determination for the evaluation period and assign a rating in accordance with Part VI above.

The method to be followed in monitoring, evaluating and assessing contractor performance during the period, as well as for determining the award fee earned or paid, is described below. The principal activities and schedules involved are also summarized below.

1. The AFEB Chairperson will ensure a monitor is assigned in writing for each performance evaluation factor or subfactor to be evaluated under the contract. Monitors will be selected on the basis of their expertise relative to prescribed performance area emphasis. Normally, monitor duties will be in addition to, or an extension of, regular responsibilities. The AFEB Chairperson may change monitor assignments at any time without advance notice to the Contractor.

2. The AFEB Chairperson will ensure that each monitor receives the following:

- A copy of this plan and any changes made in accordance with Part VIII.
- Appropriate orientation and guidance.
- Specific instructions applicable to the monitors' assigned performance areas.

3. Monitors will evaluate and assess contractor performance and discuss the results with contractor personnel as appropriate, in accordance with this plan and any additional instructions and guidance furnished by the AFEB Chairperson. Monitors will submit monthly Performance Monitor Reports.

4. The AFEB Chairperson will request and obtain performance information from other personnel normally involved in observing contractor performance, as appropriate.

5. The AFEB will consider the monthly Performance Monitor Reports and other performance information obtained. The AFEB will discuss the reports and information with monitors or other personnel, as appropriate.

6. The AFEB will meet monthly with the Contractor and discuss its performance during the period. As requested by the AFEB Chairperson, monitors and other personnel involved in performance evaluations will attend the meeting and participate in discussions.

7. Promptly after the end of each evaluation period, the AFEB will meet to consider all the performance information it has obtained. At the meeting, the AFEB will summarize its preliminary findings and recommendations for coverage in the Performance Evaluation Board Report (AFEBR), which will be in the form of briefing charts. The charts will address the AFEB’s evaluation of the Contractor’s performance, to include its strengths & weaknesses, recommended assessments for each factor, and overall performance recommendation.

8. Following initial preparation of the AFEBR, the AFEB may meet with the Contractor to discuss the board's preliminary findings and recommendations. As requested by the AFEB Chairperson, monitors and other personnel involved in performance evaluation will attend the meeting and participate in discussions. At this meeting, the Contractor will be provided an opportunity to submit information on its behalf, including an assessment of its performance during the evaluation period. After meeting with the Contractor, the AFEB will consider matters presented by the Contractor and finalize its findings and recommendations for the AFEBR. The AFEBR will include the Contractor’s input.

9. Approximately 15 days after the end of each period as shown in the table under Part III, the AFEB Chairperson will schedule a meeting with the AFDO to present the AFEBR for the rating period for use in determining the award fee earned. The meeting will begin with presentations from each Performance Monitor to discuss the Contractor's performance, strengths and weaknesses, and recommended evaluation assessments for their assigned areas. The AFEB Chairperson, or designee, will then present the AFEBR. Following the AFEB Chairperson's presentations, the Contractor will be invited into the meeting to make a presentation to the AFDO. The final phase of the meeting consists of an Executive Session, which is attended only by the AFDO, AFEB Chairperson, AFEB members, legal counsel and a recorder of record. The AFDO decides on the award fee percentage earned by the contractor. Discussions are held to determine the language to be included within the AFDO decision letter and to calculate the amount earned. The AFDO decision letter, with the attached briefing charts, will then be signed by the AFDO and sent to the Contracting Officer for immediate action.

10. The AFDO will determine whether the unearned award fee for the evaluation period will be added to the subsequent evaluation periods or removed from the award fee pool, and will so state in the AFDO decision letter. The Government may elect to distribute unearned award fee evenly to the subsequent period, or to apply any unearned award fee to specific evaluation period(s) if the AFDO determines that certain period(s) require increased performance incentive(s).

11. The Contracting Officer will endorse the AFDO's award fee decision letter for the purpose of authorizing payment of the earned award fee and will forward the letter to the Contractor. The Contractor may bill for the award fee immediately upon receipt of the Contracting Officer's authorization.

The following is a summary of the principal actions involved in determining the award fee for the evaluation periods:

{PRIVATE}Action	**Workdays**
1. Monitors assess performance and discuss results with Contractor.	Ongoing after start of period
2. Monitors submit Performance Monitor Reports to AFEB.	Last day of each month
3. AFEB considers Performance Monitor Reports and other requested performance information.	Ongoing
4. AFEB discusses overall performance with the Contractor during period.	5 days after end of each month
5. AFEB meets and summarizes preliminary findings and develops the AFEBR.	10 days after end of period
6. AFEB meets with AFDO and Contractor to brief findings and determine Award Fee earned.	15 days after end of period

{PRIVATE}Action	Workdays
7. AFDO issues the decision letter and the Contracting Officer endorses the letter to authorize payment.	NLT 30 days after end of period

The AFEB will establish lists of subsidiary actions and schedules as necessary to meet the above schedules.

VIII. Changes in Plan Coverage

1. Steps to Change Plan Coverage

The following is a summary of the principal actions involved in changing plan coverage

{PRIVATE}Action	Workdays
AFEB drafts proposed changes	Anytime
AFEB submits recommended changes to AFDO for approval	30 days prior to end of each period.
Through Contracting Officer, AFDO notifies Contractor as to whether or not there are changes	15 days before start of the applicable period.

The AFEB will establish lists of subsidiary actions and schedules as necessary to meet the above schedules.

2. Method for Changing Plan Coverage

The method to be followed for changing the plan coverage is described below:

a. Personnel involved in the administration of the award fee provisions of the contract are encouraged to recommend plan changes with a view toward changing management emphasis, motivating higher performance levels, or improving the award fee determination process. Recommended changes should be sent to the AFEB for consideration and drafting.

b. At least 30 days prior to the end of each evaluation period, the AFEB will submit its recommended changes, if any, applicable to the next evaluation period for approval by the AFDO with appropriate comments and justification.

c. Not less than 15 work days before the beginning of each evaluation period, the Contracting Officer will notify the Contractor in writing of any changes to be applied during the next period. If the Contractor is not provided with this notification at least 15 days before the beginning of the next period, and the Contractor does not agree to the recommended changes, then the existing plan will continue in effect for the next evaluation period.

ATTACHMENT I

PERFORMANCE MONITOR AWARD FEE EVALUATION WORKSHEET

Design/Build of the Pentagon Wedges 2-5
Contract No. MDA947-01-C-2001

PERIOD OF EVALUATION: _____(insert dates)

PERFORMANCE EVALUATION FACTOR: _____

EVALUATION RATING (circle one): Excellent Very Good Good Poor/Inadequate

- JUSTIFICATION FOR RATING: (Address strengths and weaknesses of each standard for measuring performance noted in the award fee plan.)

- SUBFACTOR (if applicable):

  COMMENTS: (Address each standard for measuring performance)

- SUBFACTOR (if applicable):

  COMMENTS: (Address each standard for measuring performance)

(Use additional sheets as needed)

_____ _____
(Name & Signature) (Date)

ATTACHMENT II

PERFORMANCE MONITOR MONTHLY EVALUATION AND ASSESSMENT RECORD

Design/Build of the Pentagon Wedges 2-5
Contract No. MDA947-01-C-2001

PERIOD OF EVALUATION: _____(insert dates)

- This record documents the monthly evaluations, assessments, and discussions conducted with the Contractor.
- EVALUATIONS/ASSESSMENTS/DISCUSSIONS

- CONTRACTOR REPRESENTATIVE CONTACTED: _____
- DATE OF CONTACT: _____
- COMMENTS/NOTES:

_____ _____

(Name & Signature) **(Date)**

ATTACHMENT III

SAMPLE PERFORMANCE MONITOR ASSIGNMENT LETTER

Pentagon Renovation Program June 1, 2001

MEMORANDUM FOR John Smith

SUBJECT: Pentagon Wedges 2-5 Award Fee Performance Monitor Assignment Letter.

This letter is to officially assign you as a Pentagon Wedges 2-5 Performance Monitor. You will be assigned to monitor the Performance Evaluation Factor #1, Design and Construction Performance. Please refer to the Pentagon Wedges 2-5 Award Fee Evaluation Plan for your responsibilities. The contractor will be notified of your assignment.

Chairperson, Award Fee Evaluation Board

CF: Award Fee Determination Official

DEMOLITION AND ABATEMENT QUANTITIES BASED ON WEDGE 1 DATA

SEPTEMBER 22, 2000

Demolition and Abatement Quantities Based on Wedge 1 Data

The best gauge of effort for demolition and abatement activities in a Wedge lies in data supplied from the operations conducted in Wedge 1. No accurate surveys of existing hazardous and toxic materials are available for Wedges 2 to 5. Comprehensive existing condition data from Wedge 1 demolition and abatement activities can be considered representative of similar quantities to be encountered during each of the remaining Wedges' demolition. The Wedge 2 to 5 contractor will be expected to conduct preliminary and follow-up surveys of areas demolished to assure accurate identification of contaminated materials and proper disposal. This effort generally comes after and must be coordinated with the decommissioning activities in SOW section 2.6.6.2.

The demolition and abatement contractor expended approximately 425,000 man-hours in Wedge 1. The Wedge 1 area is approximately 986,000 square feet. Total cost of demolition was approximately $10 per square foot and abatement activities cost approximately $18 per square foot. It should be noted that the demolition and abatement in Wedge 1 was done "piecemeal." The program was unable to completely vacate the Wedge prior to initiation of demolition and abatement activities and many "work-arounds" were required to complete the work, adding cost and time. This contract should realize improved coordination in the remaining Wedges between the Contractor and the Government prior to initiation of demolition and abatement activities.

Quantities removed by the Wedge 1 demolition and abatement contractor amount to approximately 14,400 tons of contaminated material and 41,634 tons of clean disposal. A more specific breakdown of quantities is available in the following summary report.

I. General

The purpose of this report is to present a summary of the demolition and abatement (D&A) activities that occurred during the Wedge 1(W1) construction. It is a summary report and reflects the opinions of various people involved with Wedge 1, as well as other, construction activities at the Pentagon. The information below thus reflects the quantities of materials removed and conditions found in W1.

The D&A activities during the W1 construction were presented with some challenges and constraints including:

- On-site identification/classification of hazardous materials.
- Requirement to minimize disruption to existing tenants adjacent to the work area (other side of the barrier wall).
- Compliance with Pentagon security/access requirements.
- Difficulty in tracking, identifying and maintaining the highly complex utility, communication and duct systems.

II. Materials Removed

The following presents a summary of the hazardous and other materials removed during the W1 D&A as well as a description of the locations where hazardous materials were found:

Hazardous Materials

Lead Based Paint (LBP)

LBP was primarily found on mechanical equipment, doors, doorframes, window frames, chair rails, columns, column covers, various stair components, bathroom tiles and miscellaneous metal work. There was little consistency in the locations where LBP was found. Identification was primarily performed using x-ray Fluorescence.

A total of 17 trailers of LBP material were disposed of at approved facilities.

Asbestos Containing Materials (ACM)

ACM locations included:

The drywall system was found to contain asbestos joint compound in many locations.
Some of the duct work contained asbestos caulking material.
ACM was frequently found behind demolished work.
Most piping insulation.

A total of 27,400,000 pounds of ACM was generated and disposed of during the demolition- the preponderance being low level drywall. A total of 685 trailers of material were disposed of in approved Solid Waste Disposal Facilities. The following tables present an indication of the types, locations, consistency and concentration of ACM within the building. This information is based of very approximate estimates and recollections of events.

Definitions:

Description - describes the material and or function
Consistency - Where this material was located in the building it was consistently found to be ACM.
Concentration - High: greater than 50 % Asbestos fiber
Medium: 10-50% Asbestos fiber
Low: 1-10% Asbestos fiber

Architectural Systems

Table II.1 - Asbestos Containing Material - Major Architectural Systems

Description	Consistency	Concentration	Location
Acoustical Ceiling Plaster – Direct application to substrate	High	Low	All five floors in original office spaces.
Acoustical Ceiling Plaster – Suspended Ceilings	High	Low	All five floors in Ring and Lateral Corridors
12 X 12 in. Ceiling tiles	Low	Low	All five floors but random in distribution
Ceiling tile adhesives	Low	Low	All five floors but random in distribution
Wall tile	Low	Low	All five floors but random in distribution
Wall tile adhesives	Low	Low	All five floors but random in distribution
Drywall joint compound	Low	Low	All five floors but random in distribution. Was used extensively for repairs and selective renovations. No consistency
Floor tile & mastic	High	Low	All Flooring finish except bathrooms and terrazzo. Has been removed in some locations during selective renovations. Multiple layers present in some locations.

Plumbing Systems

Table II.2 - Asbestos Containing Material - Major Plumbing Systems			
Description	Consistency	Concentration	Location
Hot Water Supply	High	Medium	Distributes along radial corridors and up vertical chases to service points
Hot Water Re-circulating	High	Medium	Distributes along radial corridors and up vertical chases to service points
Potable Water Cold	High	Medium	Distributes along radial corridors and up vertical chases to lateral runs down rings to service points
Drinking Water System	High	Medium	Distributes along radial corridors and up vertical chases to lateral runs down rings to service to service points

Mechanical Systems

Table II.3 - Asbestos Containing Material - Major Mechanical Systems			
Description	Consistency	Concentration	Location
High Pressure Steam	High	High	Distributes along radial corridors and up vertical chases to service points
Low Pressure Steam	High	High	Distributes along radial corridors and up vertical chases to service points
Condensate Returns - High Pressure Condensate Return – Low Pressure	High	High	Distributes along radial corridors and up vertical chases to service points
Chilled Water Supply Chilled Water Return	High	Low	Distributes along radial corridors and up vertical chases to service points
Air Handling Supply	High	High	The air supply system is primarily conditioned in the first, second and 5th floor machine rooms and distributed through transite, metal or, Carrie ducts to window units.
Heat Exchange Tanks	High	High	Located in the mezzanine level machine rooms and used to provide potable hot water and service the Weathermaster system. Distributes along radial corridors and up vertical chases to service points

Additional Hazardous Materials

There were other types of hazardous materials found abandoned within the wedge. These included solvents, paints, caustics, mercury switches and thermostats, waste cleaning products, fuels and oils.

Most of the lights contained PCB ballasts. 83,000 pounds of PCB ballasts were removed.

Electrical vault demolition required the removal of 390 cubic yards of PCB contaminated concrete.

III. Construction Conditions

Building access for the removal of material was complicated by the need to move most material through windows via temporary freight elevators.

Numerous non-functioning valves were found which complicated the isolation of the mechanical systems and required alternative valving schemes or “freezing “ of the pipes.

There are conduits in the floor slabs and these need to be sealed to prevent water migration to adjacent (or below) occupied areas.